Intergenerational Relations
Contemporary Theories, Studies, and Policies

Edited by Andrzej Klimczuk

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Meet the editor

Andrzej Klimczuk, Ph.D., is a sociologist, public policy expert, and assistant professor in the Department of Social Policy of the Collegium of Socio-Economics at the SGH Warsaw School of Economics, Poland. He has worked as an external expert for institutions such as the European Commission, Interreg CENTRAL EUROPE Programme, and Fondazione Cariplo. He is the author of numerous scientific papers in the fields of gerontology, labor economics, public management, and social policy. His recent books include *Economic Foundations for Creative Ageing Policy* and *The Sharing Economy in Europe: Developments, Practices, and Contradictions.* He is a section editor for the *Encyclopedia of Gerontology and Population Aging*.

Contents

Preface

This edited volume, *Intergenerational Relations – Contemporary Theories, Studies, and Policies*, concentrates on relationships among individuals from diverse age groups and generations.

The contributors discuss studies on four key challenges that impact connections across different age groups: social and cultural challenges, economic and technological challenges, environmental challenges, and political and legal challenges. The book discusses and explores topics crucial for the worldwide, national, regional, and local implementation and effectiveness of intergenerational solutions, initiatives, and schemes to meet the United Nations Sustainable Development Goals.

The collection includes fifteen chapters written by forty-nine experts from twenty-four different countries: Brazil, Bulgaria, Canada, Chile, Fiji, France, Ghana, Iceland, Italy, Latvia, Lithuania, Malaysia, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Turkey, the United Kingdom, and the United States. The volume includes chapters containing research and practical guidance from a variety of disciplines, including demographics, economics, ethics, management, gerontology, public health, pedagogy, social work, political science, and sociology.

This book is organized into five parts, each including distinct content. The first section, "Social and Cultural Challenges", focuses on topics such as changes in intergenerational relationships in families, intergenerational conflict, intergenerational communication, and intergenerational transmission of cultural values.

The second section, "Economic and Technological Challenges", covers themes such as intergenerational socioeconomic inequalities, intergenerational support, health and social care, intergenerational support, resource transfer, intergenerational division of labor, multigenerational workforce, generational differences in the working environments, digital literacy, lifelong learning, and digital divide.

The third section is focused on "Environmental Challenges". It discusses frameworks such as aging in place, smart and healthy age-friendly environments, age-friendly cities and communities, and interdisciplinary collaboration.

The fourth section, "Political and Legal Challenges" and focuses on political challenges intersecting population aging and intergenerational relationships. The contributions included discussing issues such as poverty alleviation, the development of social protection, and the public participation of older adults.

The last section, "Variety of Perspectives on Intergenerational Relations", examines topics such as agism, intergenerational innovation, intergenerational mentoring, and sustainable development.

This book is valuable for academic and professional groups investigating theories of intergenerational connections as well as public services and age-related policies. The volume aims to assist students, practitioners, and individuals in government, business, and charitable organizations in fostering constructive and friendly connections across different generations.

I thank every author for their contribution to this publication. We have compiled a variety of research that will benefit both current and future generations. I would like to express my gratitude to Elvira Baumgartner and Lucija Tomicic-Dromgool from IntechOpen for their excellent organizational abilities in assisting with the editing and publishing process.

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Section 1

Social and Cultural Challenges

Chapter 1

Mother/Daughter-In-Law Conflict: Communication in Family Intergenerational Relationships in Chinese Culture

Molly Han, Yan Bing Zhang, Teri Terigele and Shu-Chin Lien

Abstract

Grounded in communication accommodation theory and conflict management frameworks, we examined conflict-initiating factors and management styles in the written scenarios of intergenerational communication in mother/daughter-in-law conflict from 135 Taiwanese daughters-in-law. Content analysis results showed that mother-in-law-to-daughter-in-law (MIL-to-DIL) criticism (42.2%, n = 57) was the most frequently reported initiating factor of intergenerational conflict, followed by MIL-to-DIL illegitimate demand, daughter-in-law-to-mother-in-law (DIL-to-MIL) criticism, and generation disagreements/generation gap. The results also revealed that the most frequently adopted conflict management style by mothers-in-law was the competing style (84.4%, n = 114), especially in managing conflict initiated by MIL-to-DIL criticism and illegitimate demand. When mothers-in-law adopted the competing style, daughters-in-law tended to converge to the same style 41.2% of the time. Implications of the findings were discussed with reference to past studies on intergroup/intergenerational communication and aging research, conflict management in family intergenerational relationships, and the age-based Chinese cultural value of filial piety.

1. Introduction

The proportion of older adults is growing globally [1]. In particular, Asian societies experience faster aging than other world regions [2]. As of 2020, older adults aged over 65 in Asian countries were about 414 million, accounting for over 56% of the world aging population [3]. These data, coupled with rapid shifts in age structure and improvement in life expectancy in Asia, suggest that intergenerational communication and support exchanges in aging families have considerably increased [4].

Motivated by concerns about later life quality of older adults in aging societies, scholarly interest in intergenerational communication accelerates, including

more attention on communication in conflict situations in family intergenerational relationships [5–7]. However, intergenerational in-law relationships, especially intergenerational tensions between in-laws, are still understudied [8, 9]. Moreover, scholars have specifically called for family relationship studies in non-Western cultures [10]. Compared to people in Western cultures who value autonomy and independence, families in Asian countries, for example, embrace collectivistic values and thus have distinct lifestyles and elder caregiving arrangements. In regard to lifestyle, research indicates that 50% of older adults in the Asia-Pacific regions live in multigenerational households, compared to only 7% in North America [11]. The cohabitation lifestyle allows intergenerational support, and elder caregiving is often expected from the young generation. Consequently, due to the lifestyles and cultural norms, intergenerational contact frequency in Asian cultures tends to be higher than the other cultures. Nevertheless, proximity and increased intergenerational communication in East Asian countries do not guarantee closeness [12]. Negative communication and conflict may extenuate intergenerational relationships and affect elder caregiving. In an endeavor to advance research on family conflict, the current study examines a familial relationship in an East Asian context by focusing on the perspectives of Taiwanese daughters-in-law about their experiences of intergenerational communication in conflict situations with their mothers-in-law by adopting communication accommodation theory as the theoretical framework.

By enriching the field of research on family conflict, the current study illustrates the significance of how intergenerational communication affects family relationships within an East Asian context. Under the influence of Confucian traditions, individuals view maintaining good connections with parents-in-law and offering support as more of an obligation rather than a personal choice due to higher degree of filial reverence and power distance in Asian culture. Women remain the primary sources of elder care due to the entrenched ideology regarding gendered division of household labor within Asian families. Particularly, married women are expected to bear the burden of elder care after marriage and undertake transferred responsibility from other family members [13, 14]. However, intergenerational conflict between mothers- and daughters-in-law influences the well-being of both young and older adults, family solidarity, and marital quality of married women [15]. For example, scholars have identified animosity and tension between mothers- and daughters-in-law as a reason for elder abuse. Destructive conflict in dyadic interactions decreases the marital satisfaction of married women [16, 17]. Conversely, constructive approach to conflict may facilitate family bonds. Therefore, our research study on in-law conflict will shed light on the debilitating or harmful and facilitating or positive mechanisms and opportunities for two parties, providing insight into how conflict management affects successful aging and family solidarity.

Many communication scholars have set out to explain intergenerational conflict by employing communication accommodation theory (CAT) and the communication predicament of aging model, which was developed based on CAT [18]. CAT rests on the tenets that individuals make communicative adjustments during the interaction to regulate communication effectiveness and social distance by using strategies such as accommodation or nonaccommodation as communicative moves [19]. We argue that although conflict can be destructive when it is managed inappropriately, appropriate management can enhance relational development and mutual understanding. Therefore, CAT is suitable for our study in explaining communicative moves in conflict situations between mothers- and daughters-in-law when both parties (in) appropriately manage relational, familial, and identity distance [20].

The following sections first review the theoretical framework. This section discusses how nonaccommodative communication moves may initiate conflict and influence subsequent conflict management styles. Following the method section, major types of factors that initiate conflict and frequently adopted conflict management styles are reported in the results section. Discussion section focuses on theoretical and practical implications on intergenerational communication and aging, family conflict management, and the filial piety value.

2. Literature review

2.1 Communication accommodation theory and intergenerational communication

Since its initial conceptualization of communication convergence 50 years ago [21, 22], CAT has developed into a systematic, useful, and "one of the most influential behavioral theories of communication" [23], enhancing our understanding of interpersonal and intergroup dynamics of relational communication among social groups. For example, given the prevalence of negative age stereotypes, CAT has provided a useful theoretical lens for research on communication between individuals from different age groups in and outside the family context [24]. Specifically, two CAT strategies, accommodation and nonaccommodation are found to be useful in examining intergenerational communication dynamics. Accommodation is the communicative adjustment that emphasizes similarity and reinforces relational solidarity to reduce social distance [25]. Nonaccommodation refers to communication adjustment that exceeds the communicative needs (i.e., overaccommodation) or is perceived as insufficient (i.e., underaccommodation) [26, 27]. Research in general reveals some satisfying and dissatisfying old-to-young and young-to-old communicative behaviors with a heavy focus on negative intergenerational communication or various forms of nonaccommodative interactions, as well as their negative consequences [28]. The studies guided by the communicative predicament model of aging are particularly noteworthy in this regard [29, 30]. Guided by CAT, we focus on exploring specific forms of accommodative and nonaccommodative communication strategies embedded in daughters-in-law's written accounts in conflict situations with their mothers-in-law.

As shown in literature on family relationships, intergenerational relationships are fundamental to family members' well-being, and perceived intergenerational accommodation and relational quality are associated with willingness for future caregiving [31]. Some common forms of accommodation include providing/receiving support, attentive listening [32], and providing useful advice [33]. Prior studies indicate that perceived accommodation is positively associated with relational closeness and quality with a parent [34], and satisfying intergenerational relationship is positively associated with instrumental support (e.g., help with housework) provided to the parent [35, 36].

On the other hand, conflict may emerge when communicative exchanges in intergenerational relationships are perceived as nonaccommodative, failing to adjust to one's identities, roles, and emotional needs. In Asian societies, daughters-in-law are expected to fulfill the prescribed roles and obligations that are clearly guided by cultural norms and enact behaviors seen as accommodative (e.g., to be obedient and carry out elder caregiving). When daughters-in-law violate the expected roles or identity

(e.g., celebrate holidays with family-of-origin instead of family-in-law), inappropriate ways of managing the situation by either party may result in an escalated destructive conflict. Moreover, extant literature highlights that this dyad also encounters generational differences and clashes in values and opinions because of age gap and stereotypes. Although older adults are often the victims of ageism, the young generation often experiences patronizing talk [37] based on stereotypes of being "entitled, lazy, and self-centered" as well [38]. Such age stereotypes may reflect in the communicative moves of mothers-in-law. For instance, mothers-in-law may view their daughters-in-law not doing housework because of laziness, and condescending speech may be employed often such as criticizing, disapproving, and nagging in response to the age stereotype. Consequently, nonaccommodation following the activation of age stereotypes may result in relational tension. Perceived communication nonaccommodation received from older adults has association with increased anxiety [39] and reversely relates to relational solidarity and, thus, bias and stereotypical behaviors toward older adults [40]. On the positive side, constructive ways of managing conflict also provide opportunities for relational development. For instance, previous research studies by Turner and colleagues found that accommodative moves such as maintaining open conversation gradually narrowed the distance between mothers- and daughters-in-law and enhanced relationship quality. Therefore, informed by communication accommodation theory, accommodative versus nonaccommodative communication is central to understanding conflict initiation and management in intergenerational relationships.

2.2 Initiating factors of conflict and conflict management styles

Conflict-initiating factors are conceptualized as communicative (mis)moves of one person interfering with or hindering "the activity of another," which may intensify a situation leading to conflict. A growing body of literature on intergenerational communication in family and nonfamily contexts has identified conflict-initiating factors [41]. In a content analysis of Chinese young adults' written scenarios that investigate intergenerational conflict, Zhang reported several major factors including old-to-young and young-to-old criticism, illegitimate demand, rebuff, and generational gap. Central to these conflict-initiating factors are old-to-young nonaccommodative communication behaviors such as being imposing restrictions, interfering, or meddlesome. Similarly, some of these nonaccommodative themes also appeared in the accounts of intergenerational communication between U.S. young adults and their older counterparts. A recent study conducted by Zhang and Wiebe in 2022 examining U.S. older adults' communication experiences with both family (i.e., grandchildren) and nonfamily young adults in conflict situations confirmed these major themes. These studies have demonstrated that the nonaccommodative behaviors often trigger conflict between young people and older adults in both Western and Eastern societies. However, it is unclear whether these factors exist in mother- and daughter-in-law relationships. Thus, we pose the following question.

Research question 1: From the perspectives of Taiwanese daughters-in-law, what are the primary conflict-initiating factors in the intergenerational relationships with mothers-in-law?

When a conflict occurs, individuals may employ different management strategies [42]. Scholars delineated four distinct conflict management styles in intergenerational communication: competing, obliging/accommodating, avoiding, and problem-solving [43]. Competing is characterized by a high level of self-interest and a low level of interest for others. Finding fault, rejecting, questioning, and denying responsibility

are typical communicative behaviors of competing. Obliging/accommodating, on the contrary, shows a low level of self-interest but a high level of interest for the others. This style includes recognizing the others' needs, affirming their positions, apologizing, and taking responsibility for the conflict. Avoiding involves communicative behaviors such as minimizing the conflict, downplaying disagreement, trivializing, shifting conversations to withdraw from the situation, and reflecting low levels of interest for both parties. Lastly, problem-solving shows high levels of interest for both parties. This style includes expressing empathy and understanding, soliciting input from interactants and others, and collaborating to find solutions to achieve cooperation and communication satisfaction. Research examining conflicts reported by both young and older participants across various contexts reveals that older adults tend to employ competing the most, compared to other styles, and more than younger adults' adoption of the same style (see findings from Zhang and Wiebe's study). At the same time, young adults are equally satisfied with adopting the accommodating and problem-solving styles when managing conflict involving older counterparts (see findings from the study by Zhang et al. in 2005). Researchers found that women in the Asian context tend to use obedient and suppressed behaviors (i.e., obliging) when they get involved in a conflict with their mothers-in-law [44]. Methodological differences may explain some of the inconsistencies. To our best knowledge, we know little about the respective conflict management styles of mothers-in-law and daughters-in-law. Hence, we pose the following question.

Research question 2: From the perspectives of Taiwanese daughters-in-law, what are the conflict management styles used by mothers-in-law and daughters-in-law in their intergenerational relationships?

Extant research on conflict from an intergroup perspective based on CAT and the CPA model has heuristic values in understanding the conflict management styles. According to CAT, nonaccommodation is related to unfavorable outcomes [45] compared to accommodation [46]. That is, conflict-initiating factors, which are primarily perceived as forms of communication nonaccommodation, may result in adopting conflict management styles (e.g., competing) that can negatively affect relationships. Notably, prior research has shown that conflict parties do converge either optimally (e.g., both parties use the accommodating style) or nonoptimally (e.g., both parties use the competing style) regarding their conflict management styles. Specifically, if one party enacts strategies that are (non)accommodative to manage a conflict, the other party uses similar strategies. However, negative reciprocation, where one party responds to the competing style with the same approach, poses a threat to mother-in-law and daughter-in-law relationships. Taken together, we pose the following research question.

Research question 3: How are conflict-initiating factors associated with the management styles in mother-in-law and daughter-in-law conflict?

Research question 4: How are mother-in-law and daughter-in-law's conflict management styles associated with each other?

3. Method

3.1 Participants and procedures

A total of 140 Taiwanese daughters-in-law, who had a living mother-in-law, voluntarily participated in the current study and received monetary compensation. If they had more than one mother-in-law, we instructed them to focus on any one

of them in their choice. We recruited participants via daughters-in-law referrals and the snowball sampling method. We first reached out to a group of Taiwanese college student volunteers from a large university in Taipei. We specifically asked each of the student volunteers to provide us with information about married women who we can contact about participating in our study, examining their communication with their mother-in-law. Those students received class credits for their referral. We then mailed a printed survey to the women participants who agreed to take part in our study in a stamped and return envelope. We asked them not to put their names on the survey and emphasized our study's voluntary and anonymous nature to encourage participation. Those who took part in our study were encouraged to invite acquaintances and friends to take the survey. We removed five participants who could not recall a recent conflict with their mothers-in-law. The response rate was high (i.e., 77.7%). Among 135 participants (*M* age = 41.24, *SD* = 8.20; age range 22–60) in the final sample, 98 (i.e., 72.6%) participants received a bachelor's degree or equivalent. Participants reported a variety of occupations (see **Table 1**). Eighty-three (i.e., 61.5%) participants contributed to less than 50% of family income. Nighty-four (i.e., 69.6%) participants were from urban areas and the rest reported from rural areas in Taiwan. Seventy-three participants (i.e., 54.1%) were cohabitating with their mother-in-law or living in the same cities.

We first designed the survey in English and translated it into Chinese by well-educated and competent bilingual researchers. Two experienced bilingual Chinese nationals back-translated the survey to English to check the semantic validity of the Chinese version of the survey. Two native Chinese speakers proofread the Chinese survey to ensure the accuracy of stylistic expressions and reduce any additional semantic errors. After proofreading, the survey was modified based on group discussion among the researchers.

At the onset of the study, participants were requested to provide demographic and background information (e.g., age, education, occupation, family income, residency, living distance, and contact frequency with the reported mother-in-law). Then,

Occupations	*N* = 135
Housewives	42
Education (e.g., Teachers, Professors, Research Assistants)	24
Accounting, Banking, Finance & Insurance	13
Government	12
Management & Business	11
Nurses	5
Workers	4
Nannies	4
Mass Media, Publishing & Designing	4
Office Staff	3
Service	3
Did not disclose	10
Total (*N*)	135

Table 1.
Demographics regarding reported occupations of daughter-in-law participants.

participants recalled a recent conflict incident they were experiencing or had experienced with their mother-in-law. Aiming to fully understand the conflict-initiating factors and conflict management styles, we explicitly solicited participants to provide detailed accounts of the communication exchanges that took place at the initiation of the conflict, during the conflict process, and the resulting outcomes. The written accounts reported by participants typically varied in length, ranging from one to three paragraphs, with a few participants providing responses as long as a page and a half (about 250 words).

Following the instructions, participants rated the seriousness of the conflict situation (M = 4.60, SD = 2.19; one item on a 7-point scale; 1 = not serious at all, 7 = very serious). Participants then reported their mother-in-law's age (M age = 68.96, SD = 9.95; age range 44–93), years they had known each other (M = 15.38, SD = 8.83), and the length of daughter-in-law and mother-in-law relationship (M = 13.54, SD = 8.84). Participants maintained relatively frequent contact (M = 5.26, SD = 1.39; one item on a 7-point scale; 1 = having no contact, 7 = meeting with mother-in-law every day) with and were moderately close to (M = 4.27, SD = 1.87; one item on a 7-point scale; 1 = not close at all, 7 = very close) their mothers-in-law. Additionally, participants reported low communication satisfaction with conflict management during the process (M = 3.20, SD = 1.90; one item on a 7-point scale; 1 = not satisfied at all, 7 = very satisfied). Overall, from the perspectives of daughter-in-law participants, the conflict scenarios were not very serious, and they did not handle the conflicts in satisfying ways.

3.2 Coding scheme and reliability check

We considered each conflict scenario as a unit of analysis. The coding process involved several systematic steps. First, we carefully read 27 (i.e., 20% of the total sample) conflict scenarios a few times to have a general understanding of the nature of mother- and daughter-in-law relationships and conflict delineated by our daughter-in-law participants. Second, along with the instructions we provided participants in generating the written scenarios, we analyzed each conflict scenario by examining four variables associated with the conflict including: (1) substantive issue, (2) conflict-initiating party or parties, (3) conflict-initiating factor, and (4) conflict management style used by each party. These selected cases were included in a pool for later coding but were not included in the following reliability check. For the substantive issue, we examined what the reported conflict was about (e.g., child-rearing, personal hygiene, financial issues, etc.). For the conflict-initiating party, we examined who initiated the reported conflict, daughter-in-law, mother-in-law, or both sides. These two variables involve straightforward procedures by reading each conflict scenario carefully to identify a major issue involved in each conflict and the conflict-initiating party or parties. In examining the factors that initiated conflict and conflict management styles, we referenced prior literature. For example, we used Zhang's operational definitions for initiating factors in the conflict between generations developed in 2004 as key reference or priori. We also consulted conflict management styles in intergenerational relations reported by Zhang and colleagues [43], and these two studies examined intergenerational conflict in the Chinese cultural context.

For each conflict scenario, we assigned a single, dominant code or characteristic for each variable to each unit of analysis (i.e., each scenario or narrative). In other words, we identified only one dominant initiating factor, one major daughter-in-law conflict management style, and one major mother-in-law conflict management style in each conflict scenario. Coders could identify the initiating factors very easily as they were usually clearly stated in one statement following the prompt (i.e., "How was the

conflict started?"). However, the management styles were embedded in a series of statements typically following the prompt (i.e., "How did you handle the conflict?" or "How did your mother-in-law handle the conflict?"). We considered a communication characteristic as a theme or category if it occurred repeatedly in many scenarios (e.g., criticism). In the coding process of conflict-initiating factors, we refined the priority list and added new or emergent codes to it. Hence, the coding scheme used in the current study involved both refined categories from prior literature and new categories.

We identified four initiating factors, and these factors were distributed across three types of conflict initiators (i.e., from daughter-in-law to mother-in-law, vice versa, or mutual). Seven other initiating factors (e.g., mother-in-law's inability and dialect barrier), each of which accounted for less than 2% of the data, appeared in 18 scenarios that did not fit the four categories and were placed in the "other" (see **Table 2**).

Types	Initiating factors
Old-to-young	*Criticism from mother-in-law to daughter-in-law (MIL-to-DIL)*: The mother-in-law criticizes or finds fault with the daughter-in-law's behavior, opinion, and/or attitude and communicates her dissatisfaction with the daughter-in-law directly.
	Illegitimate demand from mother-in-law to daughter-in-law (MIL-to-DIL): The mother-in-law places or imposes her wants, needs, desires, or demands on the daughter-in-law regardless of her daughter-in-law's wants, needs, or desires based on the belief that she has the right or status to do so. No explicit criticism was indicated as the initiating factor of the reported conflict.
Young-to-old	*Criticism from daughter-in-law to mother-in-law (DIL-to-MIL):* The daughter-in-law criticizes or finds fault with the mother-in-law's behavior, opinion, and/or attitude and communicates her dissatisfaction with the mother-in-law directly.
Mutual	*General disagreements/generation gap*: The daughter-in-law perceives a difference or clash in attitude, values, lifestyle, and/or opinions with mother-in-law. Age difference tends to be considered as the cause of the conflict. Minimal criticism or illegitimate demand is indicated.
Other	*Illegitimate demand from daughter-in-law to mother-in-law (DIL-to-MIL)*: The daughter-in-law places or imposes her wants, needs, desires, or demands on the mother-in-law regardless of her mother-in-law's wants, needs, or desires based on the belief that she has the right or status to do so. No explicit criticism was indicated as the initiating factor of the reported conflict.
	Rebuff from mother-in-law to daughter-in-law (MIL-to-DIL): The mother-in-law rejects the daughter-in-law's request for desire, support, approval, help, or need for more attention, affection, or understanding. In other words, the daughter-in-law does not get the desired reaction or response from the mother-in-law. No explicit criticism or demand is indicated.
	Rebuff from daughter-in-law to mother-in-law (DIL-to-MIL): The daughter-in-law rejects the mother-in-law's request for desire, support, approval, help, or need for more attention, affection, or understanding. In other words, the mother-in-law does not get the desired reaction or response from the daughter-in-law. No explicit criticism or demand is indicated.
	Cumulative annoyance: The daughter-in-law attributes a difference in attitude, lifestyle, and/ or opinions to the conflict between them. Central to the cumulative annoyance is that it has occurred often.
	Mother-in-law's inability: The daughter-in-law attributes the mother-in-law's physical or cognitive inability to the conflict between them. No explicit criticism, demand, or rebuff is indicated.
	Miscommunication and language barrier: The daughter-in-law attributes misunderstanding, misinterpretation, or language barrier (e.g., dialect) in communication to the in-law conflict.
	Implicit communication: The daughter-in-law attributes the mother-in-law's implicit communication with her about problems, emotional negativity, and relational dissatisfaction between them to the in-law conflict.

Table 2.
Definitions of the identified initiating factors in intergenerational conflict (adapted from Zhang [30] unless otherwise noted).

For the coding of conflict management styles, we used a refined list of four intergenerational conflict management styles to uncover the conflict styles used by mothers- and daughters-in-law. Four distinct conflict management styles from both sides (i.e., problem-solving, accommodating, avoiding, and competing) were coded by examining the communicative behaviors embedded in daughters-in-law's written narratives of the conflicts.

Following the coder training session, two coders conducted independent analyses of 25 scenarios (18.52%). The intercoder reliability for intergenerational conflict-initiating factor and conflict management styles utilized were measured using percent agreement (.84, .88, and .84, respectively) and Cohen's Kappa (.80, .87, and .94, respectively). Disagreements on the initiating factors and management styles were discussed among the authors and resolved through consensus. The remaining 110 conflict scenarios were divided and individually coded. Researchers maintained meetings with coders to ensure adherence to the coding instructions throughout the coding process.

4. Findings

The current study investigated the typologies and frequencies of conflict-initiating factors, and management styles manifested in daughters-in-law's written narratives in intergenerational conflicts with mothers-in-law. We report the findings regarding our research questions below.

4.1 Research question 1: conflict-initiating factors

Research question 1 examined how the reported conflicts were initiated. Our results showed that daughters-in-law reported four predominant typologies of conflict-initiating factors: (1) old-to-young criticism, (2) old-to-young illegitimate demand, (3) young-to-old criticism, and (4) disagreements caused by the generation gap. Seven other conflict-initiating factors (e.g., mother-in-law's inability and dialect barrier) that appeared less frequently in the narratives (n = 18) were categorized as "other" (see **Table 3**). We did not analyze the other category further. A one-way chi-square analysis, $\chi^2(3)$ = 35.1, $p < .001$, and post hoc pairwise comparisons indicated that older-to-young criticism (i.e., criticism from mother-in-law to daughter-in-law) was reported most frequently (n = 57; 42.2%) followed by illegitimate demand from mother-in-law (n = 22; 16.3%), criticism from young-to-old (n = 19; 14.1%), and disagreement/generation gap (n = 19; 14.1%) (**Table 3**). To provide a context for these typologies, we offer the following explanations and examples.

4.1.1 Old-to-young criticism: criticism from mothers-in-law

Among the reported initiating factors, old-to-young criticism was reflected in mothers-in-law's expressions or behaviors such as finding faults in, hostile questioning about, or rejecting daughters-in-law's behaviors, opinions, and/or attitudes. For example, one respondent shared, "my mother-in-law always criticized my cooking as unsavory." Another respondent took care of her sister-in-law, who just gave birth (mother-in-law's own daughter). However, her mother-in-law criticized her for not preparing "nutritious enough food" for the sister-in-law. The following two examples reflect the type of criticism of a similar nature in the family context:

> *My mother-in-law asked me to prepare egg soup for my sister-in-law. She then went to a grocery store. When she came back and saw the soup, she reprimanded me angrily that how come I did not know I need to fry eggs first before making the egg soup for a new mom (Scenario 99).*

> *My mother-in-law and I live in the same house but on different floors. We live on the third floor and sometimes my mother-in-law would check the bathroom on the third floor. Then she said that I did not know how to do and organize house chores (Scenario 18).*

4.1.2 Old-to-young illegitimate demand: illegitimate from mothers-in-law

The second conflict-initiating factor was old-to-young illegitimate demand. Our respondents shared their anger and frustration over various requests or demands from their mothers-in-law that in their view were illegitimate. The major premise of old-to-young illegitimate demand was that mothers-in-law imposed their needs, wants, or desires on daughters-in-law. The following excerpts are examples of this conflict-initiating factor. One participant complained her mother-in-law's illegitimate demand regarding how she took it for granted that the eldest son and daughter-in-law should take care of the whole family:

> *My mother-in-law acts like the eldest son (the respondent's husband) and daughter-in-law (the respondent herself) should take care of everything for the whole family unconditionally without any complaints (Scenario 152).*

Other participants reported their mother-in-law's enactment of partiality to her family-of-origin by asking her not to visit her family-of-origin often (Scenario 40) or

Initiating factors	Frequency ($N = 135$)	Percentage
Criticism from *MIL-to-DIL*	57[a]	42.2
Illegitimate demand from *MIL-to-DIL*	22[b]	16.3
Criticism from *DIL-to-MIL*	19[b]	14.1
General disagreements/generation gap	19[b]	14.1
Other		
Illegitimate demand from DIL	1	0.7
Rebuff from MIL-to-DIL	6	4.4
Rebuff from DIL-to-MIL	2	1.5
Cumulative annoyance	4	3.0
MIL's inability	2	1.5
Misunderstanding and dialect barrier	2	1.5
Indirect communication	1	0.7
Total	135	100.0

Note: Other was not included in the one-way analysis of chi-square analysis. Different superscripts indicate significant differences. Overall $\chi^2 (3) = 35.1$, $p < .001$.

Table 3.
Frequency of the identified initiating factors in intergenerational conflict.

to have more than two children (Scenario 22). The following is a different example showing unfair demand for financial contributions reported by a daughter-in-law to a house remodeling project:

> *My mother-in-law wanted to remodel the house under her name. She assumed I, as the only daughter-in-law, should pay for the remodeling cost unconditionally because her son (my husband) did not have savings (Scenario 3).*

4.1.3 Young-to-old criticism: criticism enacted by daughters-in-law

Young-to-old criticism occurred when daughters-in-law found faults with mothers-in-law's behaviors, opinions, and/or attitudes and explicitly expressed their criticism. One participant criticized her mother-in-law, who collected and hoarded used bottles and cardboard (Scenario 20). Moreover, young-to-old criticism may be related to mundane daily routines such as child rearing and education:

> *My mother-in-law spoiled my children. In the morning, when my children got up, my mother-in-law would prepare everything for them and escort them to school. I felt my mother-in-law treated my children well, but also cultivated bad behaviors. Hence, I mentioned to my mother-in-law that spoiling a child is very bad. Our neighbor spoiled their child, and that child couldn't get a job even in the 30s (Scenario 56).*

4.1.4 Disagreements due to generation gap

Moreover, general disagreements or generation gap highlighted the difference in attitudes, values, or lifestyles (e.g., religious beliefs and practices), as well as age gap. Several respondents reported disagreements between them and their mother-in-law due to the generational gap regarding breastfeeding and lifestyle differences (e.g., Scenario 17). While they may argue with each other, no explicit criticism was reported, and respect was frequently mentioned.

4.2 Research question 2: conflict management styles

Research question 2 focused on the frequency distributions of conflict management styles from both parties reported by daughters-in-law. A one-way chi-square analysis, $\chi^2(3) = 269.03$, $p < .001$, and post hoc pairwise comparisons indicated that competing (84.4%, $n = 114$) was used by mothers-in-law in the reported conflict scenarios most frequently followed by the equally frequently use of avoiding, accommodating, and problem-solving (see **Table 4**).

A one-way chi-square analysis, $\chi^2(3) = 24.49$, $p < .001$, and post hoc pairwise comparisons indicated that the competing style (40.7%, $n = 55$) was used by daughters-in-law in the reported conflict scenarios most frequently followed by styles of accommodating, avoiding, and problem-solving (see **Table 4**). The use of the completing style was frequently manifested in mothers-in-law or daughters-in-law's verbal expressions or behaviors such as nitpicking and criticizing one's personal hygiene or child-rearing pattern.

Unlike mothers-in-law, daughters-in-law also used the other three types of management styles frequently (i.e., accommodating, 26.0%, $n = 35$; avoiding, 18.5%, $n = 25$; problem-solving, 12.6%, $n = 17$). Daughters-in-law's reported use of obliging/accommodating showed in communicative behaviors such as recognizing their

	Management styles	Frequency	Percentage
MIL	Competing	114[a]	84.4
	Accommodating	5[b]	3.7
	Avoiding	8[b]	5.9
	Problem solving	4[b]	3.3
	Other	4	3.3
	Total count	135	100.0
DIL	Competing	55[a]	40.7
	Accommodating	35[b]	26.0
	Avoiding	25[bc]	18.5
	Problem solving	17[c]	12.6
	Other	3	2.2
	Total count	135	100.0

Note. Different superscripts indicate significant differences. Overall one-way chi-square for conflict styles was significant for mothers-in-law, χ^2 (3) = 269.03, p < .001 and for daughters-in-law, χ^2 (3) = 24.49, p < .001.

Table 4.
Frequencies of the identified conflict management styles used by mother-in-law and daughter-in-law in intergenerational conflict.

mothers-in-law's needs, showing respect toward mothers-in-law, apologizing, or taking responsibility for the conflict. Daughters-in-law's avoidance style showed in their tendency to downplay disagreement or withdraw from the situation (e.g., just laughing it off). Daughters-in-law also approached the conflict with a problem-solving style to find solutions to achieve cooperation and communication satisfaction (e.g., initiating a conversation for understanding).

4.3 Research question 3: conflict-initiating factors and management styles

Research question 3 explored the association between the initiating factors and the management styles. **Table 5** shows the cross-tabulation results indicating mother-in-law's dominant conflict management styles such as competing were mostly linked with the initiating factor of old-to-young criticism (94.7%, n = 54), followed by old-to-young illegitimate demand (90.9%, n = 20). In other words, when conflict occurred and was initiated by criticism or illegitimate demand, mothers-in-law reportedly used the competing style to manage the conflict more than 90% of the time. On the other hand, when daughters-in-law coped with conflict initiated by criticism from mothers-in-law, they employed a variety of conflict management styles—competing (33.3%, n = 19), accommodating (33.3%, n = 19), and avoiding (22.8%, n = 13).

Similarly, however, among the four styles daughters-in-law also primarily used the competing style (68.4%, n = 13) in managing conflict initiated by young-to-old criticism. Likewise, mothers-in-law also utilized the competing style to cope with young-to-old criticism (68.4%, n = 13). Notably, when general disagreement and generation gap is the conflict-initiating factor, mothers-in-law and daughters-in-law chose to utilize the problem-solving style, although the frequency of problem-solving is generally low.

		Competing	Avoiding	Accommodating	Problem-solving	Total
		n (%)	n (%)	n (%)	n (%)	
Mother-in-law's styles by factors	Old-to-young criticism	54 (94.7%)	2 (3.5%)	0 (0.0)	0 (0.0)	56
	Illegitimate Demand	20 (90.9%)	1 (4.5%)	0 (0.0)	1 (4.5%)	22
	Young-to-old criticism	13 (68.4%)	2 (10.5%)	4 (21.1%)	0 (0.0)	19
	Disagreement/generation gap	13 (68.4%)	1 (5.3%)	1 (5.3%)	3 (15.8%)	18
	Total	100	6	5	4	115
Daughter-in-law's styles by factors	Old-to-young criticism	19 (33.3%)	13 (22.8%)	19 (33.3%)	5 (8.8%)	56
	Illegitimate demand	11 (50.0%)	5 (22.7%)	5 (22.7%)	1 (4.5%)	22
	Young-to-old criticism	13 (68.4%)	1 (5.3%)	1 (5.3%)	4 (21.1%)	19
	Disagreement/generation gap	6 (31.6%)	2 (10.5%)	6 (31.6%)	5 (26.3%)	19
	Total	49	21	31	15	116

Table 5.
Association between conflict-initiating factors and management styles of mother-in-law/daughter-in-law.

4.4 Research question 4: conflict management styles adopted by both parties

Research question 4 explored the relationship between mother-in-law and daughter-in-law's conflict management styles in the reported conflict scenarios. **Table 6** indicates the frequencies of daughter-in-law's management styles across mother-in-law's management styles. Cross-tabulation results showed that mother-in-law's competing was most associated with daughter-in-law's use of the same style (i.e., competing, 41.2% of the time). The reported use of competing by mother-in-law was associated with daughter-in-law's adoption of the accommodating style (28.9% of the time). Moreover, avoiding (18.4% of the time) and problem-solving (10.5%) were also utilized by daughter-in-law when coping with the competing style of mother-in-law.

5. Discussion

Mothers-in-law and daughters-in-law are considered the "kin-keepers" who maintain familial ties across cultures, albeit their relationship often appears to be tumultuous and inherently conflictual [47]. The in-law relations are involuntarily formed through marriage [48], and this structural arrangement of kinship holds "the potential for producing ambivalence" [49] and conflict. To identify conflict-initiating factors and management styles, we used the quantitative content analysis method and analyzed written narratives from Taiwanese daughters-in-law that described their communication experiences with mothers-in-law in conflict situations.

	Daughter-in-law's style	Competing	Avoiding	Accommodating	Problem-solving	Others	Total
		n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	
Mother-in-law's style	Competing	47 (41.2%)	21 (18.4%)	33 (28.9%)	12 (10.5%)	1 (0.9%)	114 (100%)
	Avoiding	2 (25.0%)	4 (50.0%)	0 (0.0)	1 (12.5%)	1 (12.5%)	8 (100%)
	Accommodating	4 (80.0%)	0 (0.0)	1 (20.0%)	0 (0.0)	0 (0.0)	5 (100%)
	Problem-solving	0 (0.0)	0 (0.0)	0 (0.0)	4 (100.0%)	0 (0.0)	4 (100%)
	Others	2 (50.0%)	0 (0.0)	1 (25.0%)	0 (0.0)	1 (25.0%)	4 (100%)
	Total	55	25	36	17	3	135

Table 6.
Associations between mother-in-law conflict management style and daughter-in-law conflict management style in intergenerational conflict.

Our findings reveal several major themes. First, we uncovered four major initiating factors for mother- and daughter-in-law conflicts: old-to-young criticism and illegitimate demand, young-to-old criticism, and disagreements/generation gap. Second, daughter-in-law participants reported in the written scenarios that competing was primarily used by their mothers-in-law in handling the reported conflicts, especially in those initiated by mother-in-law to daughter-in-law criticism. Third, daughters-in-law predominantly used competing; at the same time, they also employed accommodating, avoiding, and problem-solving in handling conflicts with their mothers-in-law. Fourth, these major findings have both theoretical and practical implications.

The results shed light on communication accommodation theory and intergenerational conflict between mothers- and daughters-in-law, thus enhancing our understanding of family relationships regarding familial interaction and aging in Chinese culture. Extant research studies on family relations in Western contexts have portrayed intergenerational ambivalence as a theoretical orientation. Researchers adopting the ambivalence approach observe that family members hold both warmth and resentment toward each other [50]. However, the ambivalence derives from the perception that in-laws in the family are role-less [51]. Conversely, in-laws in the Asian context possess important positions in families, and their roles are clearly defined. Our research enhances our understanding that perceived violations of role expectations incur intergenerational conflict beyond the perspective of ambivalence.

Moreover, extant literature indicates that old-to-young criticism is a major conflict-initiating factor in relationships between older and young adults (as reported by Zhang in 2004 and Wiebe and Zhang in 2022), regardless of Western or Eastern family and nonfamily contexts. Particularly in Eastern contexts, mothers-in-law often engage in direct criticism and explicitly proclaim daughters-in-law's faults [52]. Aligning with previous research studies, the current study confirms that this initiating factor is dominant in mother-in-law/daughter-in-law conflict in Taiwan. Old-to-young criticism encompasses nonaccommodative behaviors such as fault-finding, rejection, and denial, which can be problematic and detrimental to the development of the relationship. As noted in CAT, inappropriate communication or nonaccommodation functions to increase social distance, maximizing ingroup/outgroup differences. The formation and development of shared family identity through marriage could be promising to enhance relational closeness and communication quality in conflict situations. Nevertheless, expressed group distinctions (i.e., family-of-origin & family-in-law) in inappropriate criticism (i.e., nonaccommodation) attenuate the positive effect of shared family identity and further escalate the conflict situations to problematic management and outcomes.

The current study found that the competing style among the four identified styles was primarily used by both mothers-in-law and daughters-in-law. Daughters-in-law used less competing (40.7%, *n* = 55) in contrast to their mothers-in-law (84.4%, *n* = 114). However, when mothers-in-law used the competing style, daughters-in-law were likely to follow suit. This finding is consistent with some prior findings that young and older adults engage in negative reciprocation of conflict management styles. Considering CAT, convergence is an accommodation strategy that can enhance or reduce perceived similarity in identities and behaviors. Convergence (e.g., one behaves similarly to another) is usually linked with positive outcomes such as communication satisfaction [53]. However, convergence may also backfire when both parties' communicative exchanges are negatively similar (i.e., negative reciprocation). Put differently, if both mothers-in-law and daughters-in-law enact the competing style during conflict management, negative relational and communicative outcomes

are likely to happen (e.g., increase in group distinction and perceived dissimilarity of identities). On the contrary, if mothers-in-law and daughters-in-law optimally converge on the use of constructive conflict management styles (i.e., positive reciprocation), they can achieve positive relational and communicative outcomes. Thus, in line with CAT, an optimal condition is when both parties converge on identity (e.g., focus on shared family membership) and accommodative acts (e.g., use the problem-solving style) and diverge on the other side's nonaccommodative behaviors.

In addition, as per the CPA model, older adults often express criticism fueled by age-related stereotypes they hold toward young adults, perceiving them as disrespectful or irresponsible [54]. Scholars identify older adults' negative stereotypes related to young family members (e.g., childish, ungrateful) [55] and explain the stereotypes are developed and activated when age differences become salient [56, 57]. Consistent with the CPA model and prior studies, the current study found that daughters-in-law attributed age-related stereotypes as problematic communication that initiated conflict (e.g., older generation just spoils grandchildren). However, daughters-in-law's stereotypical perceptions of older adults are also influenced by cultural norms related to age. Specifically, the traditional norms of respecting the elders and family harmony are valued in Taiwan. Therefore, daughters-in-law who support these age-related norms may utilize constructive conflict management styles (i.e., accommodating, problem-solving) to help diffuse the tension.

Lastly, despite decline-when-aging being a prevalent age stereotype [58], daughters-in-law were able to engage in cognitive reasoning such as perspective-taking and showed empathy toward their mothers-in-law. For example, mother-in-law's inability (e.g., physical and/or cognitive impairments) was listed as one of the conflict-initiating factors. Daughters-in-law were willing to "walk in the shoes" of their mothers-in-law by attributing some of the nonaccommodative behaviors of older adults to their illness rather than negatively stereotyping them based on their age. Thereby, daughters-in-law were able to engage in a reasoning process to evaluate whether the initiating factors or management styles were legitimate and understandable. This finding is consistent with the argument that intergenerational relationships involve ambivalence involving opposing feelings or attitudes (i.e., positive and negative) in the family context [59]. That is, complementary to intergenerational conflict, family members also show solidarity and emotional support (e.g., expressing appreciation and love) and instrumental support [60]. Hence, despite the "dark side" of mothers- and daughters-in-law conflict, intergenerational relationship is likely to be fostered when mothers- and daughters-in-law enact accommodative communication and adopt constructive ways to manage conflict and tension between them.

6. Limitations and future research

The current study relied on young adult participants to recall recent conflict scenarios. It is essential to acknowledge that these written conflict situations were based on participants' memory, which may not necessarily be fully representative of the typical conflict situations experienced by daughters-in-law. Rather, the responses might be the most memorable or salient for daughter-in-law participants. Perceived importance, seriousness, and intensity of the conflict all affected the memorable messages reported by participants. Likewise, daughters-in-law's conflict management styles may be legitimized (e.g., fundamental attribution errors) in the written accounts. Future research can include both mother-in-law and daughter-in-law's perspectives.

The sample in our study consists of married women. Our study contributes to past studies that focused on younger adults in their 20s and/or older individuals who were 65 or above by examining a different young adult sample. However, our recruitment of participants was limited by referrals and snowballing methods. Moreover, around one-third of participants were housewives at the time of data collection, and over 60% of respondents contributed less than 50% of family income. Participants reported relatively frequent contact with their mother-in-law. Financial dependence and contact frequency may influence the occurrence of family conflict. Future research can recruit participants who have different living arrangements and full-time jobs. East Asian cultures are characterized by masculinity and patriarchy, and conflict between mother-in-law and daughter-in-law may involve or be initiated by a third party (e.g., father-in-law). Future research can devote scholarly attention to understanding the relationship between daughters-in-law and parents-in-law such as fathers-in-law. Additionally, with rapid economic, political, and ideological changes in Taiwanese society, Western media may influence young women regarding parenting, motherhood, and family relationship. The average age of our participants in the current study is 41.24 years old. Future studies can explore how younger married women perceive and handle conflict with mothers-in-law.

7. Conclusions

Our study delves into the complexities of communication dynamics in intergenerational conflict, offering valuable insights into communication interactions in the family context. We found that criticism from mother-in-law to daughter-in-law acts as the predominant initiating factor fueling conflict between the two parties. Additionally, mothers-in-law most frequently used the competing style in managing conflict with daughters-in-law. Daughters-in-law, on the other hand, employed the competing style in their responses, alongside other management styles.

To interpret and contextualize conflict dynamics, we draw upon communication accommodation theory (CAT). From the theoretical lens of CAT, we can better understand how the nonaccommodative interactive moves lead to conflict between the two parties and distinguish between destructive and constructive conflict management strategies. It is crucial to note that we do not view conflict solely as problematic communication, but rather, our research emphasizes the importance and need to approach intergenerational conflict in constructive ways through communication accommodation. In other words, the communicative and relational outcomes of intergenerational conflict initiation and management depend on whether mothers- and daughters-in-law engage in accommodative or nonaccommodative moves. By recognizing the central role of communication in intergenerational conflict, we can work towards finding effective conflict management strategies in establishing harmonious intergenerational relationships and promoting health and psychological wellbeing of young and older adults.

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Conflict of interest

The authors declare no conflict of interest.

Acronyms

MIL-to-DIL	mother-in-law-to-daughter-in-law
DIL-to-MIL	daughter-in-law-to-mother-in-law
CAT	communication accommodation theory

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Chapter 2

I Want My Grandchildren to Communicate in the Local Language: Interrogating the Intergenerational Communication Landscape in Ghana

Delali A. Dovie

Abstract

The study used a cross-sectional design to obtain data on communication between grandparents and their grandchildren. Quantitative data were collected from 360 selected men and women aged 50+, whilst qualitative data were collected from 30 individuals. The results demonstrate that the study participants (80%) mostly used the verbal mode of communication. The preferred languages for intergenerational communication are Dagaati, Dagbani, Dagomba, Dangbe, Ewe, Fante, Ga, Guan and Twi. However, the grandchildren prefer to speak the English language at school and at home. This makes it difficult for uneducated and less educated grandparents, who then resort to the use of signs and symbols in communicating with grandchildren. Intermarriages and the urban-rural divide have adverse impacts on grandparents' communication with their grandchildren. Significantly, intergenerational communication facilitates the transmission of cultural norms and values from one generation to the other. The challenges encountered contextually encompass hearing problems, challenge of understanding what is said, not being fluent in spoken language, as well as physical barriers. Intergenerational communication can be improved through improving listening skills, learning to manage emotions, being open-minded, being empathetic, being receptive to feedback, etc. It is concluded that communication skills are vital to healthy intergenerational communication including intergenerational relationship building dynamics.

Keywords: intergenerational communication, language, grandparents, grandchildren, transmission of culture values

1. Introduction

1.1 The family context

Family is the building block of every society. Family is not restricted to people living in one household at a time [1] nor limited to blood ties [2], residential

arrangements and legal status of a group of people [3]. The functions of a family are derived from its definition. Families are expected to provide economic support, inherited social status, education, protection and care of the sick, religious training, leisure time and entertainment, emotional support [4] and socialisation [5–7]. Nukunya [7] notes that the family is a social arrangement in which individuals have extensive reciprocal duties, obligations and responsibilities to relations. Other functions of the family include procreation and economic cooperation. Family theorists including [8] document that 'all societies have families, but their form varies greatly across time and space'. They argue that changing family forms have been because of a variety of issues:

> 'the interplay of shifting social and economic conditions, diverse and contested ideals, and the attempts of ordinary people to build their lives amid the constraints of their particular time and place' [8].

The preceding definition by Gerson and Torres [8] supports the notion of the family being defined by its functions and types.

There are two types of family, the nuclear and extended family [1]. The nuclear family is constituted by father, mother, and children while the extended family is a constellation of different nuclear families within a lineage in Ghana. The extended family is constituted by grandparents, uncles, aunts, nephews, nieces and cousins; people who transmit values [9–10]. The extended family may constitute a residential group or non-residential group [7]. Other forms of family encompass blended families [11], foster families and adoptive families [12] step-families [13] and single-parent families. Family promotes a sense of community. Hence, efforts should be geared towards maintaining the sacred family bond and traditions held dear, especially among extended family relations [14]. Extended family members provide care and loving support to the sick and unfortunate individuals within the family system. This is a confirmation that the family assists in strengthening, sustaining and revitalising individuals with the capacity to do their best in every sphere of life, contributing to societal, national and global development [15]. Regular interactions among family members create the feeling of belongingness while feeling a sense of responsibility, security and commitment towards all things held dear; albeit personal, economic and social lives [16]. Grandparents are important in shaping and helping in all matters relating to the progression and direction of family members [17]. Penultimately, the nuclear family is crucial in nurturing children and a simple, basic and elementary component of society [18]. The family is a source of identity and a shared history for a given group of people [19].

Family life course development is the undulating pattern of events, observable or anticipated within the family [20–21]. The contemporary family is characterised by an average period of about 40 to 45 years of married life and goes through three broad cycles: beginning, expanding and contracting stages. From the initial stage of the family cycle, young couples learn the art of homemaking, and it lasts for at least a year. The expanding period has two phases. The first represents periods when babies arrive, and family size expands from two persons to three or more persons. This stage is filled with physical care and supervision, loving and protecting babies and guiding older children [22].

1.2 Human generations

Craft [23] documents that typically, generations cover a span of about 20 years and show variances in the way they act, making them very different from the cohort before and after. The generations are outlined as follows: Silent Generation, born

between 1928 and 1945; Baby Boomers, born between 1946 and 1964; Generation X, born between 1965 and 1980; Millennials, born between 1981 and 1996; and Generation Z, born between 1997 and 2012. Generation Alpha refers to people born from 2013 onward. The generations of humans have undergone a drastic change in the manner in which technology is adopted and used. For instance, the younger generation is much more savvy technologically in terms of grasping new technology than the earlier generations. Further, this demonstrates a difference between the actions of generations. This may be an indication of the fact that society is moving at a much faster pace than in previous years. Howe and Strauss [24] believe that the generational differences of groups of today have a drastic effect on the educational system.

Beck and Wade [25] argue that video games have a dramatic effect on the actions of both younger and older generations due mainly to regular access to video games, proposing that games have changed the way people in general and children, in particular, think in contemporary times. In fact, [25] found that in playing games, people including children display seven habits, namely having the opportunity to succeed; the belief that success is due more to luck, gamers are very proficient in teamwork while learning from within their own group; games teach the youth to understand who the boss of the game is and the need to defeat the current boss. Beck and Wade [25] conclude that this scenario causes problems with authority figures within an organisation; gamers need to know their place in life as well as how well they are doing; gamers are aware of their environments; finally, gamers are used to having the option of selecting the right team. Edery and Mollick [26] were in agreement with Beck and Wade that in general games, and most especially video games '... can make all the difference between success and failure' (p. 4). According to them, games drive people to think and change the role of thinking from work to fun.

1.3 Technology and communication

One change in technology is the number of communication channels available to the different generations and the levels of use of each generation with different technology with respect to the methods of communication. Noteworthy is that these may take the form of face-to-face communication and handwritten mail [27]. These were further categorised into human–message interaction and human–human interaction [28]. Human–human communication is defined as any form of communication where an individual talked directly to another individual, including face-to-face and telephone conversations. Human-message interaction is defined as any form of communication not directly associated with a human, such as email and voice mail. A variety of types of methods of communication are available to individuals. They include writing and the delivery of mail(s), telephone. The present study focuses on face-to-face, verbal, non-verbal, written, visual and technology-based (i.e. text messaging and social media) communication.

Human interaction cannot exist without communication. Communication is defined as the process of sharing ideas, thoughts and feelings among people. Information is usually transferred from a source (a person) to a receiver (another person) through a medium (verbal, phone call or chat) which results in feedback [29]. Communication primarily involves making meaning out of symbols in a way that is accepted and widely recognised by a group of people [19]. Humans are social beings and often see themselves as belonging to groups of families and societies. As such, it is considered natural to show kindness, share material possessions with family members, and thereby become distressed when physically alienated from close relations [30].

Frequent communication is crucial in maintaining healthy family life, proper sociali-sation and is a sure means of resolving conflicts [19]. People view communication as an indispensable skill, essential in facilitating their quest for better lives [31].

Communication is the exchange of information from one person to another person. This can be on a one–on–one basis within a group of people. More often than not, every type of communication exchange involves at least one sender and one receiver. A communication exchange has three different components namely the sender or speaker, the message or content as well as the recipient or listener. There are diverse forms of communication such as verbal communication, non-verbal communication, written communication, visual communication [32, 33], and listening [33]. Listening entails holding eye contact, maintaining good posture, nodding, mirroring the body language of the speaker to show interest, including allowing the speaker to complete his/her entire thoughts. First, in verbal communication, use is made of words, phrases, sentences, conversations, etc. or spoken language to communicate with others includ-ing grandchildren. Second, non-verbal communication includes any other com-munication that is not verbal such as gestures, signs, facial expressions, etc. Third, written communication takes the form of a letter, email, case report or comments on social media. Fourth, the act of listening is one of the crucial parts of communication. Last but not least, the visual dimension of communication occurs with the assistance of visual aids. These entail drawings, illustrations, colours, road signs, symbols, and Argumentative and Alternative (AAC) communication devices (e.g., choice cards, symbol boards, communication books, keyboards, alphabet chats, etc.).

Ghana is a highly multilingual country. Dakubu [34] notes that it has approxi-mately 50 languages. However, the key ones are Akan, Dagaare, Dagbani, Ewe, Ga. Eleven (11) of these languages are taught in schools, whereas a few are used on radio and television stations. The English language is the official language in Ghana [35]. According to Yankah [36], there are other non-Ghanaian languages, such as Hausa is spoken as a lingua franca in the zongos, and in northern Ghana and Arabic, which is learnt in Islamic schools across Ghana but mainly used for religious purposes.

In connection with Dakubu's [34] arguments, Anyidoho's [37] documents that several programmes have been initiated in Ghana on teaching and learning in the local Ghanaian languages including National Literacy Acceleration Program (NALAP). NALAP is:

> *an instructional approach which provides teachers and pupils of the Lower Primary level (KG 1 – P3) with quality literacy materials, effective instruction and public support to read and write in their local language(s) and in English. The methodology seeks to make pupils literate in their local language(s) for a smooth transition to English. Therefore, by P3, it is expected that the pupils would be fully bilingual* (p. 227).

According to Anyidoho [37]:

> *Essentially, the Policy is that, "instruction at the Lower Primary Level (Primary 1 – 3) will be conducted in the pupil's mother tongue, or in the major Ghanaian language of the local area, while English will be studied as one of the subjects offered at the Lower Primary Level. From Primary 4 onwards, class instruction will be conducted in English; and the Ghanaian language(s) will then be studied as one of the subjects offered.* (p. 227)

Previous studies intimate that there is a generational gap between the two distinct generations [38] in terms of communication. Connecting with parents, grandparents,

aunties or uncles can help us feel a sense of belonging. Significantly, connecting with parents, grandparents, aunties or uncles can help in feeling a sense of belonging. Research has shown that young people with a strong emotional bond to a grandparent [38] have less chance of being depressed – and vice versa. The generational gap between baby boomers, Generation X and Millennials can lead to miscommunication, misunderstanding and, sometimes, no communication at all. This faulty communication can create generational conflict that may slow production, reduces workplace enjoyment and fosters distrust. Every generation has its own communication style, influenced by the world around them while growing up. The study sought to investigate how intergenerational communication shapes intergenerational interactions and explore paradigm shifts in the dynamics of intergenerational communication. However, understanding context can help provide perspectives and increase awareness and understanding of the diverse communication methods utilised in contemporary times. The research questions for this study were framed around the following three questions: (1) How does intergenerational communication shape intergenerational interactions? (2) What challenges do grandparents encounter in communicating with their grandchildren? (3) How can intergenerational communication be improved?

The chapter is organised as follows: Section 1 introduces the study, Section 2 presents the theoretical framework, Section 3 outlines the methods used, Section 4 presents the study findings, Section 5 discusses the findings and Section 6 concludes the chapter.

2. Theoretical framework

A medley of two theories underpinned this study. They are the Expectancy Violations and the Uses and Gratification theories.

2.1 The expectancy violations theory

This theory argues that different groups develop social or accepted norms of social nature. The basic principle supporting this theory is that cultures create social norms around communication. When the social norms are violated, the receiver may react in different ways depending on the perception and value placed on the individual delivering the message. This theory attempts to explain an individual's reaction to unexpected behaviour falling outside the boundaries of what is socially expected. According to Burgoon [39], generations also have created their individual social norms of expectations based on which method of communication that is generally accepted. These "expectancies may be particularised for an individual or general to a language community or subgroup" [40]. Expectancy can be defined as a prediction about what will happen in some situations [41]. Burgoon and Hale [42] discussed two forms of expectancy violation, positive and negative. If a positive expectancy violation occurs, the receiver of the communication will perceive the message to be positive, resulting in more favourable communication outcomes. If a negative expectancy violation occurs, the receiver will perceive the message to be negative, resulting in a less favourable communication outcome. Both of these positive and negative forms are reached based on the delivery of the message, that is non-verbal cues to the message and not the content.

Each individual who is involved in communication of any form has certain expectations about the conversation, depending on their relationship to the other party. Burgoon and Hale [41] opine that the communicator places a certain value on

the interaction based on characteristics such as gender, attractiveness, reputation and status. In this study, grandparents place value on their interactions based on the characteristics of their status. There is the belief that positively evaluated behaviours would produce positive interpretation(s) and negatively evaluated behaviours would always produce negative interpretation(s). Burgoon and Hale [41] have alluded to the fact that both non-verbal and verbal expectancy violations had an effect on communication.

2.2 Uses and gratification theory

Simply the uses and gratification theory is a concept in which users will choose a media type based on the outcome they expect to gain from it. The original intent of this theory was to determine the role and influence of the media and why individuals chose a particular media type over another. This present study focuses on the given media used by grandparents to communicate with their grandchildren.

Ruggiero [42] has laid out the fact that the problem with the uses and gratification theory had to do with the form of media being used and a more interactive media, or a media form in which the user would gain a response yielding a more positive outcome. However, it has been suggested that there exist six (6) user-oriented areas of interactivity in this context: threats, benefits, sociability, isolation, involvement and inconvenience. In furtherance to this, Rubin and Windahl [43] have noted that the perceived gratification received was enhanced if the method of communication was more interactive. Their research concluded that dependency on a medium or a message results when individuals intentionally seek out information (p. 187). According to Ruggiero [42], the use of the approach of the uses and gratification in defining the selection of media type is no longer perceived as favourable in contemporary times. However, telecommunications and the use of technology could revive the theory. It is, however, worth noting that telecommunications, the use of the Internet, gaming, email, and cellular devices are all forms of interactive media which promote the use of the uses and gratification.

3. Methods

The purpose of this study was to determine how intergenerational communication shapes intergenerational interactions and paradigm shift in the dynamics of inter-generational communication. Use was made of a cross-sectional design in this study in which both quantitative and qualitative tools of data collection were employed in obtaining information from men and women aged 50+. The age range spans between 50 and 85 years. The purposive sampling method was used in the process of sampling. A sample of 360 responses was sought from some section of Ghanaians in the Adenten Municipality and La Nkwantang Municipality in Accra in the Greater Accra region of Ghana. The selection of this study site was due to the fact that the Greater Accra region is one of the most urbanised localities in Ghana and therefore depicts a rich epitome of the speaking of a multiplexity of local languages found across the whole nation due to its cosmopolitan nature. This study's research question(s) were framed around the following three questions as mentioned earlier: (1) How does intergenerational communication shape intergenerational interactions? (2) What challenges do grandparents encounter in communicating with their grandchildren? (3) How can intergenerational communication be improved?

3.1 Data collection

The research was conducted using questionnaires and semi-structured interview protocol as the major instruments for the research. The quantitative data were collected from 360 selected men and women aged 50+, whilst qualitative data were collected from 30 individuals. Interested and available respondents took part in the study and expressed their views on the phenomenon under study including its effect on familial relations. The participants were given the appropriate information about the research, after which their consent were obtained. Whenever a respondent gave their consent to participate in the study, precisely each was taken through the objectives of the study and guaranteed confidentiality. Participant's privacy was ensured by protecting the data collected from the participants and ensuring that only the researcher had access to the data. Also, the participants were made aware that they could withdraw their participation at any time in the research and that if for any reason they decided to withdraw from the study, the information they had given would be destroyed.

3.2 Data analysis

The quantitative and qualitative data were analysed using Statistical Package for the Social Sciences (SPSS) version 20 and thematic analysis and managed with Nvivo software version 14, respectively. The answered questionnaires were cleaned and serialised for easy identification. A data entry template for the quantitative data was developed in SPSS. The survey data were then entered into SPSS and were analysed with selected descriptive statistical tools such as frequencies and percentages were used. In the case of the qualitative/interview data, the thematic analysis method of data analysis was the chosen method because of its inherent flexibility [43]. The checklist for analysing qualitative data as outlined by Braun and Clarke [43] as well as the revised version in [44] was employed. These are as follows: 1. Researcher familiarised herself with the data, 2. Generated initial codes, 3. Searched for themes, 4. Reviewed themes, 5. Defined and named themes, before finally 6. producing the report [44]. Hence, responses were read, re-read and initial codes generated, additional reading of transcripts to select themes that evolved were done. The 'themes were verified against each other and the original data set' [43]. In ensuring rigour in the analysis, this back-and-forth activity dealt with searching, reviewing, defining (redefining) and naming of themes. Themes were then checked for clarity and unambiguity, and 'distinctiveness' [43]. Relevant recurrent themes were then grouped into *positive* (extent of satisfaction) and *negative* (challenges) themes. These themes, discussed below, provided information on how intergenerational communication obtained shaped intergenerational relationships by way of capturing the participants' experiences on the phenomenon studied.

4. Research findings

4.1 Description of sample characteristics

From the findings, the sample for the study consisted of 163 males (44.7%) and 197 females (54.8%) aged 50+. Most of the respondents were situated within the 60–69 and 70–79 age group. The highest educational level attained by most of the respondents was tertiary level (31.9%) of education, with the majority being males.

Majority of the respondents (28.1%) were married, whereas the most represented ethnic group or language was Akan (23.3%), with Mour (2.5%) being the least (**Table 1**). The highest number of children had by the study participants was more than 10 (3.1%), while the least was 1 child (9.7%).

Variables	Gender		
Age	**Female**	**Male**	**Total**
50–59	47 (13%)	43 (11.9%)	90 (25%)
60–69	56 (15.6%)	54 (15%)	110 (30.6%)
70–79	65 (18.1%)	45 (12.5%)	110 (30.6%)
80+	29 (8.1%)	21 (5.3%)	50 (13.9%)
Total	**197 (54.8%)**	**163 (44.7%)**	**360 (100%)**
Education			
None	19 (5.3%)	11 (3.1%)	30 (8.3%)
Basic	50 (13.9%)	50 (13.9%)	100 (27.8%)
Secondary	57 (15.8%)	58 (16.1%)	115 (31.9%)
Tertiary	50 (13.9%)	65 (18.1%)	115 (31.9%)
Total	**176 (48.9%)**	**184 (51.2%)**	**360 (100%)**
Marital Status			
Single	21 (5.8%)	19 (5.2%)	40 (11.1%)
Married	55 (15.3%)	46 (12.8%)	101 (28.1%)
Divorced	35 (9.7%)	15 (4.2%)	50 (13.9%)
Widowed	44 (11.9%)	23 (6.4%)	66 (18.3%)
Separated	30 (8.3%)	33 (9.2%)	63 (17.5%)
Co-habiting	20 (5.6%)	20 (5.6%)	40 (11.1%)
Total	**204 (56.7%)**	**156 (43.3%)**	**360 (100%)**
Ethnicity			
Akan	40 (11.1%)	44 (12.2%)	84 (23.3%)
Dagomba	40 (11.1%)	35 (9.7%)	75 (20.8%)
Dangbe	18 (5.0%)	10 (2.8%)	28 (7.8%)
Ewe	13 (3.6%)	10 (2.8%)	23 (6.4%)
Ga	40 (11.1%)	38 (10.6%)	78 (21.7%)
Guan	5 (1.3%)	4 (1.1%)	44 (12.2%)
Hausa	10 (2.8)	9 (2.5%)	19 (5.3%)
Mour	24 (6.7%)	20 (5.6%)	9 (2.5%)
Total	**190 (52.7%)**	**170 (47.3%)**	**360 (100%)**
Number of grandchildren			
1		35 (9.7%)	
2		39 (10.8%)	
3		38 (10.6)	

4	51 (17.2%)
5	65 (18.1%)
6	69 (19.2%)
7	18 (5%)
8	13 (3.6%)
9	9 (2.5%)
10	12 (3.3%)
More than 10	11 (3.1%)
Total	**360 (100%)**

Table 1.
Respondents' background profile.

4.2 The dynamics of intergenerational communication

The section presents findings on how intergenerational communication shapes intergenerational interactions. It is worth noting that the information in this section is a medley of quantitative and qualitative data.

4.2.1 Importance of communication between grandparents and their grandchildren

Intergenerational communication fosters the transmission of cultural values from older generations (i.e. grandparents) to younger generations (i.e. grandchildren), socialisation, development of communication skills, public speaking, strengthening of intergenerational relationships. Use is made of interview data in this context. These have clearly been outlined in the interview quotes below:

> *Through communication, we pass on cultural values to the younger generation. This is because language is a means of socialisation* (Grandparent 1, Female, 55 years).

> *Communicating with my grandchildren helps in motivating them and builds their communication skills* (Grandparent 2, Female, 58 years).

> *Communicating well with my grandchildren helps them in the way that they also know how to talk in public* (Grandparent 3, Female, 55 years).

> *Communicating well with my grandchildren helps in strengthening my relationship with them* (Grandparent 4, Male, 53 years).

> *Communicating with my grandchildren has strengthened my relationship with them* (Grandparent 5, Female, 54 years).

Socialisation in the context of this chapter takes the form of communication in the family setting with reference to the educational/school contexts. These denote family and education institution or school socialisation.

4.2.2 Mode of communication with grandchildren

In contemporary times, most older parents do not live in the same dwelling places with their children and grandchildren due to some extent to the extended family system's decline, social change, modernisation, urbanisation and witchcraft accusations, among others. These have necessitated visitation by and from grandparents and grandchildren, respectively. This implies that older adults may visit their children and grandchildren. This visit may be short-term or long-term. Similarly, grandchildren also visit their grandparents during vacations or on holidays or in emergency situations such as illness of parents or travels and a host of others. The visitation of both grandparents and grandchildren has facilitated the transfer of cultural values, coaching on moral uprightness, and establishment and consolidation of relationships with grandchildren. Hence, the observation in the interview data shows that:

> *...visiting of grandparents helps to instill old cultural values* (Grandparent 6, Male, 62 years).

> *I always speak to them and visit them from time to time* (Grandparent 8, Male, 70 years).

> *I talk with them every single day on how to lead a moral life and through bible reading* (Grandparent 9. Female, 51 years).

> *Visiting and spending much time with grandchildren builds up relationships and bonding with grandparents, especially during most vacations* (Grandparents 10, Female, 56 years).

During times that grandparents visit and/or are with their grandchildren, they both engage in a variety of activities such as the playing of games. On the local front, these games include ludo, oware, domino, spar/cards games. The playing of such games induces improvement of mental cognitions igniting of overall interests and sociability. This includes the sharing of life's lived experiences with grandchildren. The grandparents intimated in the interview data the following:

> *When we are playing games together such as ludo, I share my life's experiences with them* (Grandparent 11, Female, 54 years).

> *Communicate by playing (in-person) games with them and also allowing them to express their views* (Grandparent 12, Female, 58 years).

> *... sharing my own experiences in life with them through in-person visits* (Grandparent 13, Male, 53 years).

Grandparents who live far away from where their children and grandchildren live, use other modes of communication such as telecommunication to reach out to their grandchildren. They observed the following:

> *I communicate with my grandchildren through phone calls and also I do visit them regularly* (Grandparent 14, Female, 60 years).

> *My grandchildren are not brought to us. We only speak with then on the telephone and so we are unable to transmit cultural values unto them, the way we would have wanted to* (Grandparent 15, Male, 56 years).

> *I communicate with my grandchildren through telephone calls or visits* (Grandparent 16, Male, 81 years).

> *I communicate with my grandchildren mostly through telephone calls* (Grandparent 17, Female, 74 years).

> *I communicate with my grandchildren through telephone communication* (Grandparent 18, Female, 65 years).

> *I communicate with my grandchildren using text messaging* (Grandparent 19, Male, 80 years).

> *I communicate with my grandchildren through telephone calls, in-person visits and sometimes through social media* (Grandparent 20, Male, 62 years).

Older adults' selection and the concomitant utilisation of telecommunication media (such as telephone calls and text messaging) and diverse social media platforms (e.g. Facebook, Instagram, Twitter and WhatsApp) for intergenerational communication is significant. This is because these have enabled the older generation to pursue and undertake communication with the younger generation(s). From a theoretical viewpoint, Ruggiero [41] confirms this in his argument that it is via the form of media being used and a more interactive media, or a media form in a context in which the user (in this case, older adults) have gained a communication yielding response.

Quite apart from playing games with grandchildren, grandparents tell them stories about life in general. See the quote below:

> *I communicate with them when they are young and also communicate by sharing stories about my life through in-person visits* (Grandparent 21, Female, 55 years).

The benefits of grandparents communicating with their grandchildren comprise bonding with their grandparents, enjoyment in the time spent with grandchildren and happiness for older people (grandparents). For instance:

> *I bond with my grandchildren through communication and spending time with them* (Grandparent 22, Male, 81 years).

> *My happiest days are the days when my grandchildren visit me* (Grandparent 23, Female, 71 years).

The above-mentioned benefits of intergenerational communication have called for an extension in the time spent with grandchildren by grandparents. In other words, the grandparents studied expressed the need for more contact with their grandchildren. This implies that less contact between grandparents and their grandchildren in contemporary times is due to physical barrier(s). Thus, the indication that:

> *I would want to spend more time with my grandchildren* (Grandparent 24, Female, 74 years).

The fact that grandparents wish to spend more time with their grandchildren implies communication, which is indicative of their status in society as the parents of the parents of grandchildren with implications for issues of the bloodline. Hence, being grandparents is a status that warrants the need to see grandchildren and socially interact with them. Stated differently, grandparents' reputation is at stake when it comes to interacting with their grandchildren, which in turn is valuable. Grandparents also have a reputation for interacting with their grandchildren. Theoretically, this result confirms Burgoon and Hale's [40] argument that the communicator places a value on the interaction based on characteristics such as reputation and status.

4.2.3 Forms of communication do grandparents use with grandchildren

The modes of communication that grandparents engage in communicating with their grandchildren are varied. These entail verbal communication (50%), non-verbal communication, written communication (4.2%), visual communication as well as listening. Ghanaian society like elsewhere across the globe has undergone a lot of change such that grandparents and grandchildren live in separate dwellings hence the use of the above indicated forms of communication (see **Figure 1**).

Verbal communication entails face-to-face or telephone or voice communication. Written communication does take the form of written notes or information on paper or any other means including emails and messages on social media platforms. Visual communication may take the form of the display of visuals, particularly on social media platforms – Facebook, Instagram, Twitter and WhatsApp. These may come with written messages. Listening is an art in communication that is key. Listening carefully to what is being said on any front enables the speaker to be assured of being heard in the process of communication. Listening attentively to a speaker who is a grandparent or grandchild sustains the interest in the process of communication.
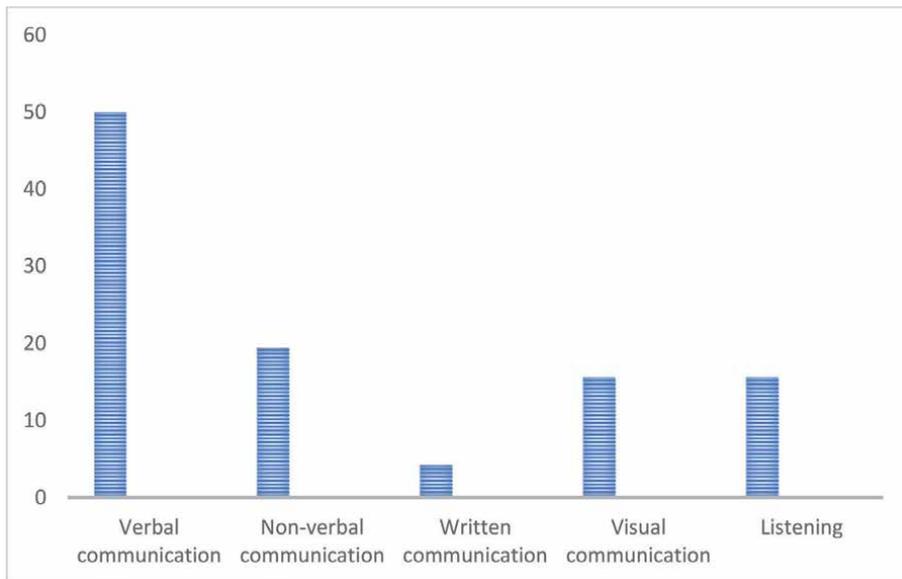

Figure 1.
Forms of intergenerational communication.

Listening therefore enables both older generations and younger generations to hear out each other in the context of communication. It has observed that:

> *I often use oral communication with my grandchildren* (Grandparent 25, Female, 60 years).

> *I use verbal and visual communication types of communication with my grandchildren* (Grandparent 26, Male, 70 years).

> *… my communication with my grandchildren is usually verbal and friendly* (Grandparent 27, Male, 62 years).

Collectively, these connote oral or verbal as well as visual modes of communication. In essence, these denote face-to-face and visual communication tools. The face-to-face mode of communication is reminiscent of the usage and facilitation of verbal communication. The visual component relates mostly to communication undertaken through social media platforms such as Facebook, WhatsApp, Twitter and Instagram that are interspersed with videos/visuals.

The languages grandparents speak with their younger generations are multiplex in nature, and they include Bono, Dagaati, Dagbani, Dangbe, English language (11.8%), Ewe, Fante, Ga, Guan, Hausa, Mour (2.2%) and Twi (**Table 2**). The Twi here indicated comprises both Akuapim Twi and Asante Twi. However, in situations where grandchildren speak different languages, the English language becomes the predominant means of communication due to intermarriages or mixed marriages, or locality of stay. Mixed marriages often occur when males or females marry foreigners or indigenes of different ethnic backgrounds than their own ethnic backgrounds, who speak different languages. This may create a linguistic gap in communication with respect to pronounciation and meaning of words and/or statement. The question then is: Do grandchildren speak the local languages of their parents? The ability of grandchildren to do this depends on efforts on the parts of their parents or guardians, particularly their lingual preferences in terms of speaking the local language or any local Ghanaian language. The educational

Languages	Frequency/Percentage
Bono	31 (6.9)
Dangbe	66 (14.7)
Dagbani	51 (11.4)
English language	53 (11.8)
Ewe	42 (9.3)
Fante	49 (10.9)
Ga	68 (15.1)
Guan	50 (11.1)
Hausa	35 (7.8)
Mour	10 (2.2)
Twi	60 (13.4)

Table 2.
Languages grandparents speak with their grandchildren.

setting and systems in the country and the adopted mode of instruction have a role to play in this context. These notwithstanding, the usage of the local language intergenerationally and the essence of it cannot be underestimated and needs to be emphasised. This is because language is the key ingredient in the process of social interaction and, for that matter socialisation. This brings to the fore the preferred languages older generations have in terms of speaking with their younger generations, discussed below. This is significant because of the need to preserve culture.

In communicating with their grandchildren, grandparents use a variety of techniques to evoke verbal expressions from grandchildren, namely: posing open-ended questions to the latter and creating room for verbal expressions and articulations. For example:

> *My grandchildren can speak the local language* (Grandparent 4, Male, 69 years).

> *By asking then open-ended questions in order to express their views through in-person visits* (Grandparent 27, Male, 50 years).

> *When my grandchildren go to school, they come back and speak English language. When they are at home, they speak Twi* (Grandparent 3, Female, 74 years).

Preferred communication languages with grandchildren by grandparents are a medley of single languages, for example, Bono, Dagaati, Dangbe, Dagbani, English language (9.7%), Ewe, Fante, Ga, Guan, Hausa, Mour, Twi, a combination of two languages (e.g. Ga and Dangbe, Ga and Ewe and Ga and Twi, Twi and Dangbe, English language and Ewe, English language and Fante, English language and Ga, English language and Mour (2.5%), English language and Twi) and last but not the least, a mixture of three languages (e.g. English language, Bono and Twi) (**Table 3**).

The quantitative information in **Table 3** shows grandparents' subscription to the utilisation of a medley of languages, either solely local languages or a mixture of local languages and the English language. First, this constitution may be a coping strategy employed to elicit the ability to freely communicate and engage grandchildren with consolidated understanding for both generations. Second, this may safeguard against language deficiencies in both generations with assurance for understanding and interconnectivity on both fronts. This has implications for multilingualism. This is tantamount to multilingualism, which in turn enables communication between Ghana's linguistically and culturally diverse population. Multilingualism promotes tolerance, ensures increased intergenerational communications, greater communication, greater effectiveness in socialisation and social interaction, better outcomes and more involvement. Multilingualism ensures equitable treatment of all languages in Ghana.

Majority of them (47.5%) revealed that they were extremely satisfied with the way they communicate with their grandchildren, whereas (10.3%) were not satisfied (**Figure 2**). This connotes the need for improvement in intergenerational communication.

This extent of satisfaction also needs to be hinged on the clarity and straightforward nature of the communication expensed. Resultantly, approximately 67% of grandparents agreed with the fact that clear and straightforward communication is important for maintaining a productive relationship between grandparents and grandchildren (see **Figure 3**). This is an indication of problems with access to grandchildren and communicating with them.

Preferred languages	Frequency/Percentage
Bono	16 (4.4)
Dagaati	17(4.7)
Dangbe	18 (5)
Dagbani	16 (4.4)
English language	35 (9.7)
Ewe	21 (5.8)
Fante	17 (4.7)
Ga	25 (6.9)
Guan	17 (4.7)
Hausa	18 (5)
Twi	28 (7.8)
Ga & Dangbe	18 (5)
Ga & Ewe	27 (7.5)
Ga & Twi	20 (5.6)
Twi & Dangbe	18 (5)
English language & Ewe	20 (5.6)
English language & Fante	20 (5.6)
English language & Ga	20 (5.6)
English language & Mour	9 (2.5)
English language & Twi	20 (5.6)
English language, Bono & Twi	11 (3.1)

Table 3.
Grandparents' preferred languages spoken with their grandchildren.

The notion of grandparents' satisfaction with their communication with grandchildren is an indication of involvement, sociability, benefits. Similarly, the challenges, the grandparents encountered in the course of communication with grandchildren serve as inconvenience, nodes of isolation as well as a threat to intergenerational communication. These results are consistent with the theoretical argument of Ruggiero [38] that there are 6 distinct user-oriented areas of interactivity namely benefits, involvement, sociability, threat, isolation and inconvenience.

4.2.4 Challenges grandparents encounter in communicating with their grandchildren

The experience of inconvenience, isolation and threat to a large extent, depict the notion of difficulties older people encounter. Thus, the participants were faced with slight difficulties (**Figure 4**).

The difficulties with intergenerational communication have to do with the exposure of grandchildren to the English language, which poses a challenge to non-English language-speaking older adults, who are able to communicate in the local languages but are at the same time unable to communicate in the English language. They explained in the interview data as follows:
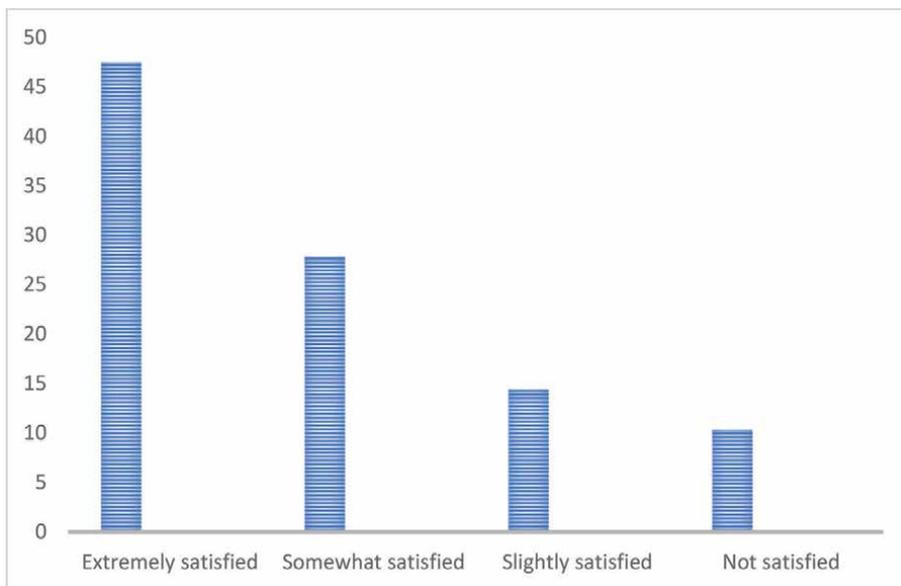
Figure 2.
Grandparents' satisfaction with how they communicate with their grandchildren.
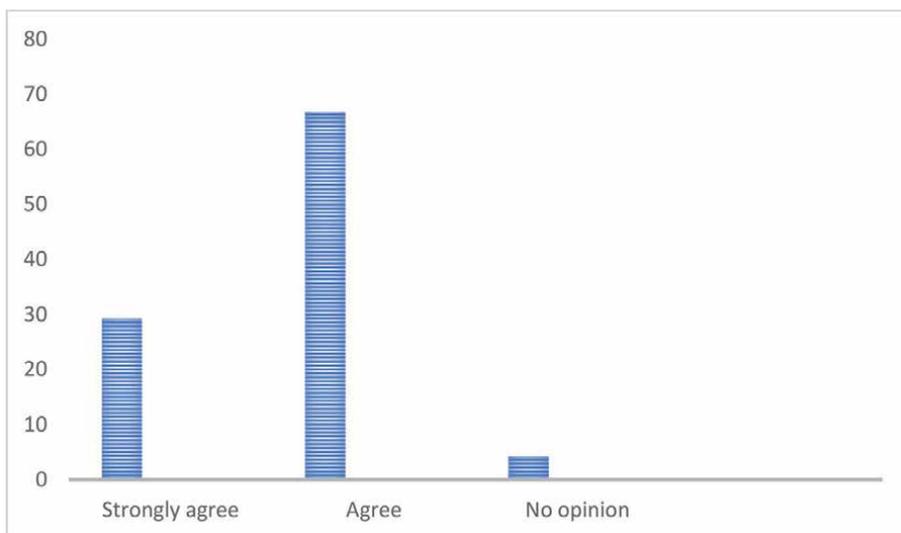
Figure 3.
Opinions on clear and straightforward communication.

> *I discovered that my grandchildren mostly understand English better than the Ga-Dangbe because I do not understand English, it has become very difficult for me to communicate with my grandchildren* (Grandparents 21, Female, 51 years).

> *I find it difficult talking to my grandchildren because they do not understand my language. So, I use signs and symbols in communicating with them* (Grandparent 28, Female, 60 years).
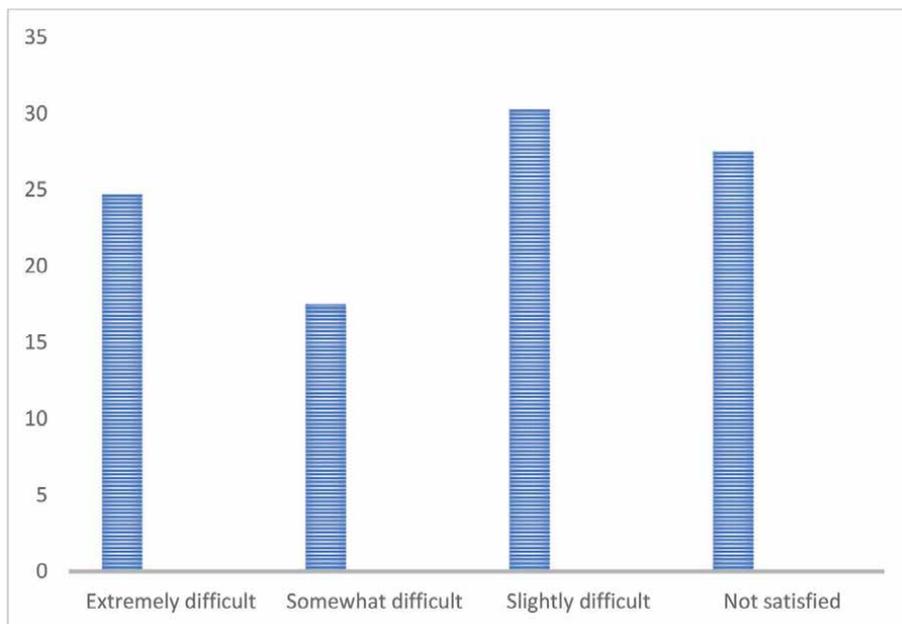
Figure 4.
Difficulties encountered in communicating with grandchildren.

> *I have a slight hearing problem sometimes. It becomes difficult for me to listen to or hear my grandchildren* (Grandparent 11, Female, 54 years).

> *It is difficult to understand my grandchildren sometimes when they speak because they find it difficult to speak the local language* (Grandparent 21, Female, 60 years).

The difficulties encountered by grandparents in the context of communication with their grandchildren entail the following: grandchildren do not understand their grandparents' spoken languages, grandparents' hearing challenges. In the case of the non-understanding of the non-spoken languages, is older adults' resort to the utilisation of sign language as well as symbols. Sign language mentioned here relates to body language. This makes body language a significant communication conduit in the context of this chapter.

There are language barrier(s) to communication between grandparents and grandchildren. As a result, some older adults (23.6%) agreed to this fact (**Figure 5**). They are therefore touting the situation and/or problem in Ghana, bemoaning situations in which communicators do not understand neither do they speak any local languages in exception of the English language.

The qualitative data shows the essence of communication between grandparents and their grandchildren and the languages used. For instance:

> *Grandparents' communication with their grandchildren facilitates the passage of cultural and other values to grandchildren. However, language barrier is the issue because my grandchildren do not understand the full impact of what is being said to them* (Grandparent 23, Female, 70 years).

> *My grandchildren mostly speak the English language and Twi* (Grandparent 19, Male, 80 years).
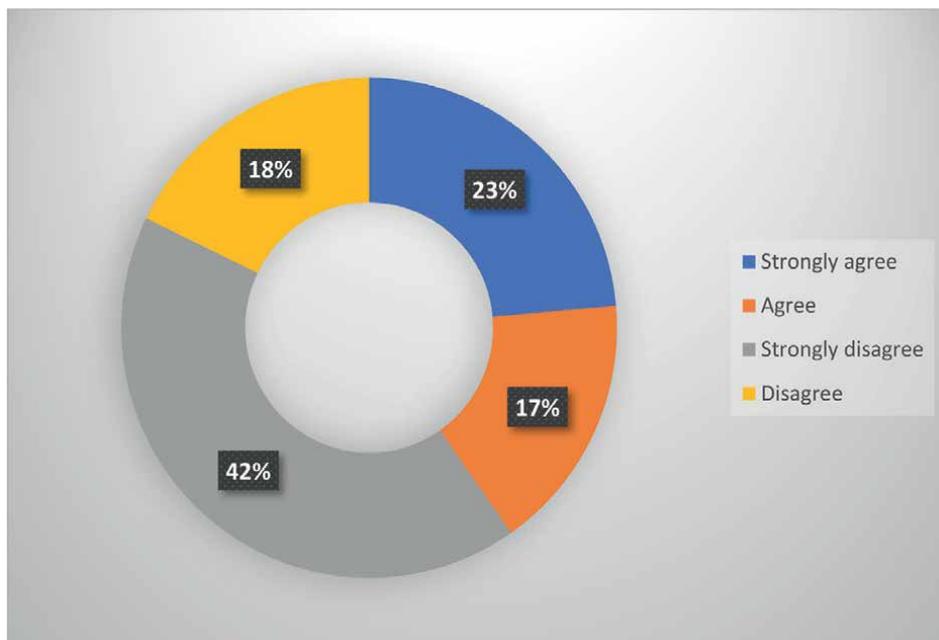
Figure 5.
Perceptions of language barrier(s).

Some significant way of some of the participants coping with the challenge of language barrier(s) is to show signs by virtue of pointing at the objects being referred to at any given material moment, deliberately speaking the local language even if the child does not understand. It was therefore explained that:

> *When I speak the local language – Twi, my grandchildren do not understand. The issue is my daughter speaks English language with my grandchildren. And so, I have to point at things to enable my grandchildren to understand what I am saying to them* (Grandparent 29, Female, 70 years).

> *I communicate with my grandchildren through verbal communication and through sign language (body language),* (Grandparent 30, Male, 52 years).

> *My mother speaks English language but she only speaks Twi with my son and now he speaks and understands both English language and Twi* (Grandparent 9, Female, 51 years).

> *I have chosen to speak the local language with my children and grandchildren. I am an elite but I have chosen to do this. Those who do otherwise, they have a big challenge* (Grandparent 8, Male, 70 years).

Older Ghanaian adults are faced with a barricade of problems in their bid to communicate with their grandchildren. Physical barrier (38.9%), that is distance between their grandparents and grandchildren in terms of dwelling places. Physical barriers have created a generational gap between older adults and their grandchildren in terms of communication. Back in the days, older adults lived in the same household with

their younger generations, that is extended family type of dwelling. This is however not the case for many families due to social change, modernisation, urbanisation, etc. Other problems entail not been fluent in the spoken language and inability to understand what is said during a conversation (**Figure 6**).

In confirmation, the interview data simplifies the above indicated challenges bringing to the fore issues of inability of grandparents and grandchildren to understand each other, particularly the former. The interview data below articulate this fact:

> *Generational gap has created misunderstanding on differences in opinion making communication difficult* (Grandparent 13, Male, 53 years).

> *I find it difficult talking to my grandchildren because they do not understand my language* (Grandparent 14, Female, 60 years).

> *My grandchildren find it difficult to understand me* (Grandparent 17, Female, 74 years).

> *Nowadays, children like speaking more of English language than the local language* (Grandparent 15, Male, 56 years).

4.3 Improving how grandparents communicate with their grandchildren

The previous section outlined the challenges that older adults are faced with such as physical barriers, hearing problems, have a problems connecting and understanding what is said including fluency in spoken language. This section proffers ways to improve intergenerational communication. As is indicated on **Table 4**. These include improve listening skills, learn to manage emotions, improve non-verbal
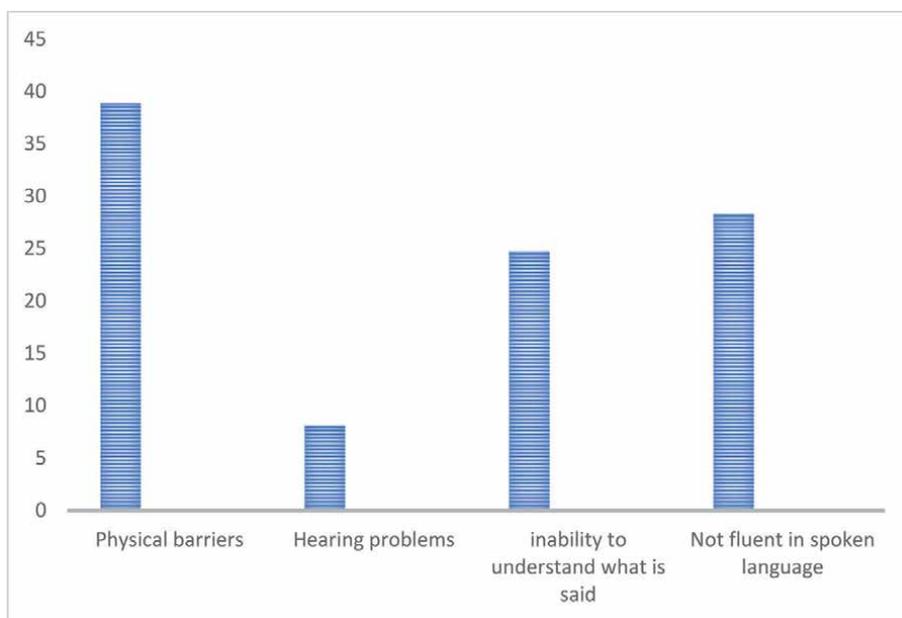

Figure 6.
Problems grandparents encounter in communicating with their grandchildren.

Languages	Frequency/Percentage
Improve listening skills	57 (15.8)
Learn to manage emotions	32 (8.9)
Improve non-verbal communication	31 (8.6)
Being open-minded	40 (11.1)
Being empathetic	40 (11.1)
Being receptive to feedback	29 (8.1)
Communicate clearly and regularly	131 (36.4)

Table 4.
Measures used by grandparents to improve intergenerational communication.

communication, being open-minded, being empathetic, be receptive to feedback (8.1) and communicate clearly and regularly (36.4%).

From the interview data, the older adults articulated the fact that several factors come into play when it comes to improving communication between grandparents and their grandchildren such as: the influence of mixed marriages, learning both the local and English languages, make deliberate effort to speak the local language(s), socialisation, educational reform in Ghana. They explained:

> *Mixed marriages influence the languages spoken with grandchildren. My son married a Fante woman. There is the need to learn both local languages and English language. I speak Guan with local people and English language with the internationals* (Grandparent 13, Male, 53 years).

> *Parents and grandparents should speak their local languages with their children and grandchildren* (Grandparent 14, Female, 60 years).

> *Communication between grandparents and grandchildren can be effective when the grandparents share their experiences* (Grandparent 6, Male, 62 years).

> *I am comfortable speaking the local language with my grandchildren than the English language* (Grandparent 8, Male, 70 years).

The contribution of socialisation in a healthy manner facilitates excellent communication skills in general and those situated within intergenerational communication in particular. This may be facilitated by understanding and consistent contacts between grandparents and grandchildren including speaking of local languages. The interview data shows that:

> *A healthy socialisation also improves good skills of communication* (Grandparent 1, Female, 51 years).

> *Grandparents must try to understand their grandchildren* (Female grandparent, 60 years).

> *Visiting of grandparents should be consistent* (Grandparent 15, Male, 56 years).

> *Parents and grandparents should ensure that they speak local languages and not always the foreign language with their grandchildren* (Grandparent 8, Male, 70 years).

> *Parents and grandparents should ensure that they teach their children and grandchildren how to speak their own spoken (local) languages* (Grandparent 10, Female, 56 years).

In all these, the role of the educational institutions in facilitating a conducive intergenerational communication was not left out. Reference was made to educational policy and its stipulations on instruction for instance from kindergarten 1 pupils using the local language, both of which are responsible for issues related to educational reforms and implementation respectively. Hence, the following intimations were made:

> *Educational reforms require that from kindergarten 1, children should be instructed in their local languages* (Grandparents 14, Female, 60 years).

> *I encourage teachers of the various educational institutions to promote the speaking of the local languages to enhance more effectiveness of communication* (Grandparent 6, Male, 60 years).

The preceding views indicate that older adults or grandparents had expectations with regard to spending more time with grandchildren, whereas it is anticipated of the grandchildren and their parents to speak the local language so that they can become a core part of the grandchildren. The older adults also expected to be close to their grandchildren more often but which seems quite impossible due to physical barriers. Also, by expectations, the older generation had a list of preferred language for utilisation in communication with the younger generation. Theoretically, these constitute in the words of Burgoon and Hale [40] positive expectancy that make the older generation communicators perceive their communication with the younger generation as positive, culminating in favourable outcomes in intergenerational communication.

It is worth noting that assessment of the vitality of communication skills in healthy intergenerational communication is a core ingredient that must be explored. Statistically, this notion was strongly agreed to by approximately 52% of the participants, whereas about 7% were not too sure about that (**Figure** 7). This suggests that one does not really need skills to indulge in intergenerational communication. Yet, such skills could be developed in the course of intergenerational communication.

The qualitative data revealed the need for careful listening as well as making efforts to learn and speak the local languages both at school and at home. These seem to be measures that may contribute to the vitality of communication skills in the context of intergenerational communication. The views below depict this:

> *Listening carefully to my grandchildren makes them happy since I can understand them better* (Grandparent 25, Female, 60 years).

> *The children should be encouraged to learn and speak the local language in school and at home* (Grandparent 22, Male, 62 years).

> *Local languages should be used more often in the home, for children to grow with them and communicate in them as well* (Grandparent 6, Male, 62 years).

Establishing the significance of the assessment of the vitality of communication skills in healthy intergenerational communication is a core ingredient that must be explored.
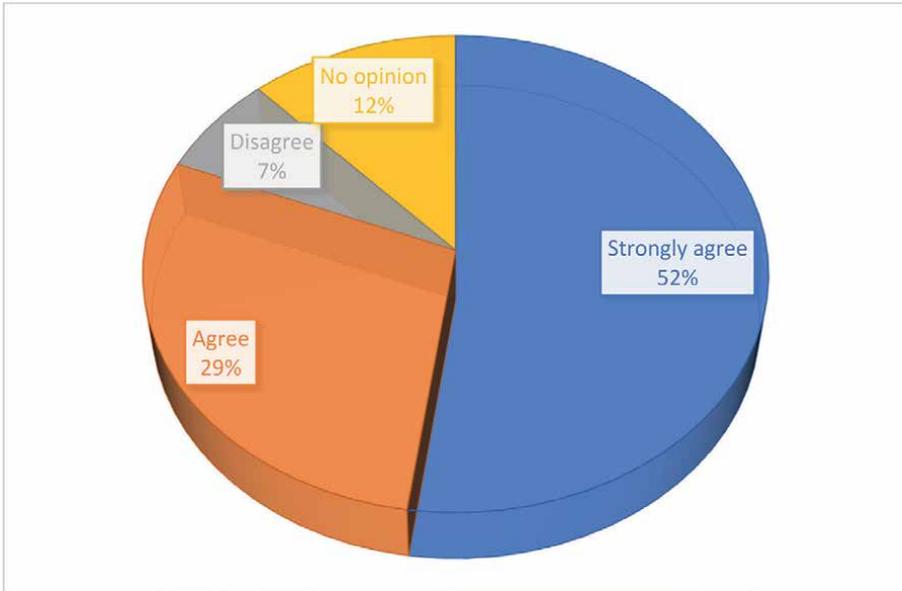
Figure 7.
Assessment need for communication skills' vitality.

As mentioned early on, the results also intimated the general essence of communication in the building of relationships, sharing of ideas, assigning responsibilities even within the frame of intergenerational communication. Put differently, these are facilitated by the phenomenon of intergenerational communication. According to about 55% of the grandparents, this is imperative in recent times (see **Figure 8**).
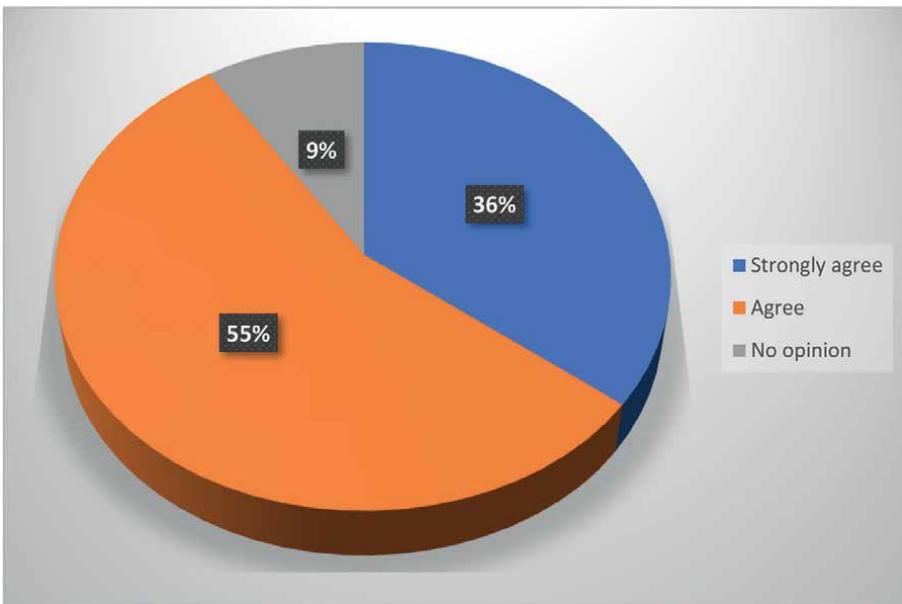
Figure 8.
Significance of intergenerational communication.

5. Discussion

The study sought to investigate how intergenerational communication shapes intergenerational interactions and explore paradigm shift in the dynamics of intergenerational communication. The study participants engage a myriad of communication modes in communicating with their grandchildren such as story-telling, usage of telecommunication modalities (including telephone calls and text messaging). In confirmation, Dovie et al. [45] observed that text messaging is used as a medium for reducing, for example, physical barriers to intergenerational communication. The results also show that the significance of visitation by both grandparents and their grandchildren, posing of open-ended questions to grand-children, playing games with grandchildren, knowledge of the interests of grand-children, social media (e.g. Facebook, Whatsapp, Twitter, Instagram, etc.). The languages which served as mediums for intergenerational communication are as follows: Bono, Dagbani, Dangbe, English language, Ewe, Fante, Ga, Guan, Hausa, Mour and Twi (comprises Akuapim Twi and Asante Twi). Primary socialisation including social interaction among older and younger generations was thus facili-tated by these outlined languages.

A language is constituted by a set of words and sounds used in a structured man-ner and is communicated between people through speaking, writing and gestures. Language is a very significant human method of communication. The United Nations (UN), [46] has six (6) official languages, namely Arabic, Chinese, English, French, Russian and Spanish. Inasmuch as communication is important, particularly between older and younger generations, it is achieved to a large extent via language and the associated speaking of it.

Playing games help in self-expressions in a variety of life's situations, for example, to depict war information, intergenerational communication, among others. These games include ludo, oware, domino, spar/card games. In a study conducted on harnessing intergenerational game nexus for older adults' well-being in Ghana, Dovie et al. [47] found that intergenerational social interaction contributed to the well-being of older people.

The mention of grandparents' using telephone calls, text messaging, social media platforms in the findings is an indication of digital literacy on the part of the grand-parents in this study to a large extent as a means of communication with grandchil-dren. This corroborates the lay out by Pahl [48] that the 'stuff' of digital literacies is materialised in smartphones, screens, tablets, and other complex digital literacy artefacts that spill into the 'stuff' of everyday life" (p. 173). This further provides a lens through which sense is made of the range of things that people do with digital technology ([49], p. 3).

Grandparents' communication with their grandchildren is facilitated by diverse factors, namely: visitation that induces face-to-face communication with the grandchil-dren. This visitation may take the form of either grandparents visiting grandchildren and their parents or the grandchildren and their parents visiting the older adults. Either way, visitation gladdens the hearts of the grandparents. Another scenario pertains to both grandparents and grandchildren and their parents living in the same households. In situations where the grandparents only visit their children and grandchildren and return to their dwellings, the act of communication continues via telephone and/or telecommu-nication. When grandparents communicate with their grandchildren, it enables them to bond with grandchildren in terms of connectivity. During older adults' communication with grandchildren, they share their lived life experiences with them. This is reflective of

the sharing of knowledge. This is key because older people or grandparents are said to be the repository of wisdom or knowledge (including the telling of stories by older adults to the younger generations). Therefore, intergenerational communication fosters a sense of belongingness, connection, bonding and attachment. In addition to these it has been observed that (social) interaction with children promotes well-being among the elderly [47, 50]. Social interaction can here be defined as meaningful dialogue [51] among individuals. Similarly, Seppala [52] wrote, "people who feel more connected to others have lower levels of anxiety and depression.

The problems encountered during intergenerational communication encompass grandchildren do not understand their grandparents' spoken languages, grandparents' hearing challenges, not been fluent in the spoken language and inability to understand what is said during a conversation, and physical barriers. McMillan and Hwang [53] identified three dimensions of communication constraints and direction of communication, user control and time.

The findings showing that some grandparents have problems when communicating with their grandchildren is a critical indication of neglect in attention as far as the local language and it is the associated spoken nature is concerned. This in turn has serious implications for development and governance processes in Ghana. Since the voices of the underserved and marginalised individuals who are non-English speakers may end up being consigned to the background and therefore will not be fully represented in issues of governance nature [37].

In improving intergenerational communication between older adults and younger people. First, there is the need for the older adults in particular to tend to listen attentively to their grandchildren. The reverse also holds. Second, despite the fact that the above-stated challenges could be problematic, older adults need to try to contain their emotions, be open-minded, be emphatic, and be receptive to feedback. Finally, there is a need for clear communication and on a regular basis.

Existing literature shows that communication is absolutely necessary in terms of relationships' building, sharing ideas, delegating responsibilities, managing a team and many more [54]. By and larger, intergenerational communication between older people and their grandchildren and the capability and barriers to the same thereof may seem to be bearers of older people's inclusion and exclusion simultaneously in the Ghanaian society [cf. [55]]. Due to the ability to communicate with grandchildren, grandparents have the propensity to feel included socially in the society. In the same vein, their inability to do the same is tantamount to social exclusion, especially in the family context, with implications for their feelings and sense of belongingness. The participation of older generations in such communications with the younger generation induces social inclusion on the part of older adults and vice versa. This finding is in line with the results of [55] in a study that ascertained the social inclusion of older adults in participation in formal care practices in Ghana. Also connected to the phenomenon of social inclusion is that of socialisation, since intergenerational communication facilitates socialisation.

The chapter shows that primary socialisation is the type of socialisation, inherent in which the older generations pass and continue to transmit values, norms and behaviours of the Ghanaian culture to younger persons, as it is found in the family. The secondary form of socialisation occurs in the educational setting, namely in the school. This form of socialisation also occurs in the mass media, churches/mosques, etc. Obviously, cultural values, norms and behaviours are transmitted through this avenue. This is a depiction of primary socialisation with the family via grandparents being the agents of socialisation. This is hampered to some extent by language barriers. Language barrier refers to impediments to speaking and understanding what is spoken, such as inability to speak a

language because of the lack of exposure to the given language. For example, learning to speak the English language to the detriment of learning, understanding and speaking the local languages. Granted that the English language is Ghana's official language, yet, this is not a counter to learning and speaking the local languages.

Socialisation is the act of incorporating an individual who is uninformed in a given culture and oriented in the cultural aspects of a the given culture. Socialisation is a life-long process that starts in the family and from the home and continues in the church, mosques, school among others. There are several types of socialisation – primary socialisation, secondary socialisation, anticipatory socialisation, adult socialisation, resocialisation, gender socialisation, racial socialisation and reverse socialisation. The agents of socialisation entail the family, church/religion, peer group(s), school, mass media [56, 57] workplace and government [56].

6. Conclusion

The chapter investigated how intergenerational communication shapes intergenerational interactions and explored paradigm shifts in the dynamics of intergenerational communication. Communication between older and younger generations facilitates socialisation by both the family and educational institution, development of communication skills, public speaking and strengthening of intergenerational relationships. Similarly, healthy socialisation also improves good skills of communication. The mediums of communication entailed both local languages (e.g., Twi, Ga, Ewe, etc.) and English language. The attainment of these were not without the encounter of some challenges. These encompass physical barriers, hearing problems, inability to understand what is said, and not being fluent in spoken language. For better intergenerational communication, the following have been proffered: improve listening skills, learn to manage emotions, improve non-verbal communication, be open-minded, be empathetic, be receptive to feedback and clear and regular communication.

The paradigm shifts here found are constituted first by intermarriages and the associated issues. Second, parental communication style is largely dependents on the English language. Third, the use of signs and symbols in situations of language barriers. Fourth, they resort to social media as a medium of intergenerational communication. Finally, the physical barrier denoted by grandparents' desire to be close to their grandchildren for longer pertains. In summary, intergenerational communication is necessary in the sharing of ideas, building relationships and the assignment of responsibilities among grandparents and grandchildren. It is concluded that communication skills are vital to a healthy intergenerational communication including intergenerational relationship-building dynamics.

6.1 Strengths and weaknesses of the study

This chapter shows how intergenerational communication shapes intergenerational interactions and explore paradigm shift in the dynamics of intergenerational communication. It also contributes to existing knowledge on intergenerational communication, fills the gap and encourages more studies on intergenerational communication. However, there are certain limitations of the current study. First, because of its cross-sectional nature, the current study could not clearly identify causal relationships between the patterns of intergenerational communication for older men and women. Hence, in the future, longitudinal research that assesses the relative

significance of causal directions could inform policymakers on intergenerational dynamics. Second, the current study also has paid no attention to the grandchildren's views on the issue. Considering grandchildren's views in research will certainly provide a two-sided understanding of intergenerational communication.

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Conflict of interest

The author declares no conflicts of interest regarding the publication of this paper.

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Section 2

Economic and Technological Challenges

Chapter 3

Socioeconomic Inequalities and Intergenerational Support in Functional Health in Brazilian Older Adults

Pedro Olivares-Tirado

Abstract

There is a growing concern as socioeconomic inequalities affect health outcomes in an older population. Aging in Brazil occurs in the context of deep and persistent income, gender and ethnic inequalities, and intensely challenging health, retirement, and social protection systems. Using data from the 2019-PNS Survey, socioeconomic inequalities in functional health and intergenerational support of care for noninstitutionalized older Brazilians stratified by household income deciles and sex were examined. Inequality indexes reveal significant socioeconomic inequalities in functional health among older Brazilian adults. Across inequality indexes, the poorest in both sexes consistently show a higher prevalence rate in mild BADLs limitations than the wealthiest. In severe BADLs limitations, these differences are not clearly stated, and it depends on the sex and type of BADLs involved. Intergenerational care favored the wealthiest deciles across inequality indexes. Consistently and significantly in both sexes, the wealthiest received more family caregiving in both BADLs limitation categories than the poorest; however, in men, their magnitude differences were lesser and statistically significant in the 10/10 and 20/20 indexes. These findings highlight the need for national policies and programs to decrease socioeconomic inequalities during early adulthood and reduce limitations in functional health later in life, particularly in the poorest.

Keywords: older adults, basic activities daily life, BADL, functional health, inequality indexes, intergenerational support, Brazil

1. Introduction

> *"But the beauty of deciles and centiles is precisely that they enable us to compare inequalities that would otherwise be incomparable, using a common language that should in principle be acceptable to everyone" [1].*

Health equity is a growing priority for most healthcare systems, as it is critical to health system performance. Measuring health inequalities across relevant population

subgroups allows for identifying differences in healthcare access, health service utilization, and health outcomes to measure progress toward achieving health equity [2].

Socioeconomic inequalities are one of the most visible manifestations of differences in living standards within countries [3]. During the last two decades, Brazil has experienced sustained economic growth contributing to reducing extreme poverty [4], improving the population's living conditions, and increasing life expectancy [5]. Nonetheless, the overall benefits of this growth have yet to be shared equally, and income inequality is still high by international standards [6].

Brazil is among the highest levels of socioeconomic inequality in the world. In 2021, with an index of 0.754, it ranked 87th of 191 countries on the Human Development Index (HDI), decreasing from 7.66 (2019) and falling one place respect to in 2020. It is just slightly above the World HDI average of 0.732, and so far compared with the Organization for Economic Cooperation and Development countries (OECD) average, HDI equals 0.899 [7].

Regarding income inequalities, in the OECD countries (2015), the wealthiest 10% of the population earn 9.6 times the incomes of the poorest 10% [8]; meanwhile, in Brazil (2013), it was 43 times [6]. According to the new OECD income definition, in Brazil (2016), the total population inter-decile ratio P90/P10, that is, the ratio of the upper bound value of the ninth decile (i.e., the 10% of people with the highest income) to that of the upper bound value of the first decile was 9.7 compared with average OECD countries of 4.3. Additionally, in Brazil, the Palma ratio, means the share of all income received by the 10% of people with the highest disposable income divided by the share of all income received by the 40% of people with the lowest disposable income, was 2.92 compared with the average OECD countries of 1.25 [9].

On the other hand, Brazil is the fifth most populous country in the world with more than 210 million inhabitants; starting the twenty-first century is experiencing among the world's fastest demographic aging worldwide [10]. Based on data from the Brazilian Institute of Geography and Statistics (IBGE), the number of older adults–people aged 60 or over–increased from 14 million in 2002 to 30 million in 2020, and it is expected to reach 58 million by 2043, corresponding at 25% of the total population [11]. This demographic transition is also occurring in a context of an epidemiological transition and significant socioeconomic inequalities [12].

It must be noticed that Brazil has the Unified Health System (in Portuguese, Sistema Único de Saúde (SUS)), designed to provide comprehensive and universal care through decentralized management and provision of health services that are free of charge at the point of delivery [13]. Alongside SUS, 26% of Brazilian citizens have private health plans that allow them to solve their health demands in the private health sector [13].

The implications of socioeconomic inequalities include higher morbidity–noncommunicable diseases–dependency or disability, and more premature mortality. It is well established that the likelihood of physical limitations and multimorbidity increase with age. Older adults with lower socioeconomic status experience worse overall health, more difficulty accessing the health care system, weakening social support, and worse quality of life and well-being [14, 15].

In Brazil, the impact of socioeconomic inequalities, exacerbated by gender and racial disparities, is clearly expressed in older adults' health. Poorer people present a higher prevalence of noncommunicable diseases (NCDs), multimorbidity, functional limitations, and disabilities. Lima-Costa et al. estimated that about 6.5 million Brazilians aged 60 years or older need help to carry out activities of daily living, 360,000 did not get help although they needed it, and at least 5.7 million relatives or friends provide informal (nonpaid) care for older adults [16].

Additionally, based on data from the 2019 National Health Survey (in Portuguese, 2019 Pesquisa Nacional de Saude), the wealthiest 20% of older adults had 11% two or more BADL limitations, receiving 51% of them help to carry out any of these activities, compared to 20% of the poorest who showed 17% of two or more BADL limitations and only 28% of them receive some help [17].

Although the Brazilian legislation guarantees comprehensive health care throughout a lifetime through the SUS, in practice, even though some progress has been made on health care for older persons, it needs to be improved. The State acts as a partner with limited responsibilities and assigns the family the primary responsibilities for the home care of the older person with functional limitations or disabilities [18]. Thus, intergenerational support has been the primary caregiving source for older persons with functional limitations and disabilities in Brazil.

Brazil is racing toward an aging and longevity society, strengthening health system because the rising importance of NCDs and disability is therefore critical. Public health policies must set targets for preventive health policy and healthy life expectancy. Reducing the age gradient for NCDs and comorbidities requires a health system based on preventive health policies through a life course approach rather than just healthcare provision. Healthy life expectancy is driven by various social determinants that go well beyond the health sector. Then, substantial gains in healthy life expectancy can be achieved by tackling health inequalities and substantially reallocating resources for a broader range of policies and prevention strategies [19].

The present study aims to provide empirical evidence about socioeconomic inequalities in the functional health and intergenerational support of care for noninstitutionalized Brazilian older adults. The effect of the household income distribution by deciles stratified by sex and summarized in inequality indexes on Basic Activities Daily Living (BADL) functional limitations prevalence rate and family caregiving rate was investigated. The hypothesis is that socioeconomic inequalities affect functional health limitation prevalence rates, and family caregiving availability is less in Brazil's poorest older adults.

In the introduction section, it is outlined the importance, scope, and challenges of socioeconomic inequalities on functional health in older persons in Brazil, a country with high and persistent income, gender, and ethnic inequalities. The second section emphasizes the main worldwide initiatives facing aging, healthy aging, health inequalities, and a detailed Brazilian evolution of rights and policies favoring older persons. The remainder of this paper is structured as follows. Section 3 defines the methods; operational definitions of variables, prevalence rates, and inequalities indexes calculations used to link functional health and intergenerational support with socioeconomic inequalities; Section 4 provides the results expressed graphically and detailed inequalities indexes analysis; Section 5 includes discussion proposing some explanation about findings and comparing these with updated national and international evidence; and Section 6 concludes.

1.1 Population ageing and functional health inequalities

In 2001, the World Health Organization (WHO) proposed the International Classification of Functioning, Disability and Health (ICF) as a biopsychosocial model for functioning and disability. The ICF is a framework for measuring health and disability at individual and population levels. Functional ability consists of the intrinsic capacity of the individual, relevant environmental characteristics, and the interaction between them. Intrinsic capacity comprises all the mental and physical capacities that

a person can draw on and includes their ability to walk, think, see, hear, and remember. The level of intrinsic capacity is influenced by several factors, such as diseases, injuries, and age-related changes [20].

Subsequently, at the Second United Nations World Assembly on Aging, Madrid, Spain, in April 2002, to address longevity implications, health and social needs of older adults, and other concerns about population aging, the WHO proposed a multidimensional approach to aging and adopted a policy framework: "Active aging," that is, a formulation of action plans that promote healthy and active aging [21].

Health inequalities in older adults are a critical public policy and a priority issue. The United Nations General Assembly declared the Decade of Healthy Aging (2021–2030) to reduce health inequities and improve older people's lives, families, and communities [22]. The inequalities in functional health in older adults measured by the decline in functionality with BADL provide valuable information regarding older people's functional autonomy and independence, especially in unequal aging societies. When one or several BADLs are compromised due to diseases or physiological changes, they can lead to isolation, dependence, and illness and accelerate the individual's death [23].

On the other hand, the family cared for older adults for centuries in several societies worldwide. However, this traditional intergenerational care has changed since the second half of the twenty-first century. Demographic, social, and cultural factors, such as reduced family size, increasing numbers of couples without children, increasing atomized family structure, and the increased participation of women in the labor market, are affecting the intergenerational care supply of older persons [24]. Despite the older social protection policies implemented in Brazil in recent decades, the State's provision of services is restricted to specific and one-off healthcare actions and assigns to the family the commitment to home long-term care. No specific policy determining the roles of the family and the public service network is available, making both older adults and caregivers vulnerable [25].

Since the Federal Constitution promulgation in 1988, consecrating a concept of "citizenship rights", Brazilian older people acquiring a set of guaranteed rights, dealing with the irreducibility of retirement and pension wages, gratuity in collective transportation and the benefit of a minimum wage for older people without living conditions [10]. In 1994, the Older Persons National Act, Law No. 8842, was enacted. This law defined an older person as anyone over 60, advocating a different approach to their physical, social, economic, and political needs and prioritizing family life over the elders' home [10].

Subsequently, in 1999 the Ministry of Health created the National Policy on Health for Older Persons (in Portuguese, PNSI Política Nacional de Saúde do Idoso). Several guidelines were defined in the context of PNSI, emphasizing the promotion of healthy aging aimed at maintaining a functional capacity to prevent functional losses, reinforcing actions aimed at the early detection of noncommunicable diseases, improvement of their functional abilities through the early adoption of healthy lifestyles, reducing harmful behaviors to health, as well as guidance for the older persons and their relatives regarding the environmental conditions to avoid falls [10, 26].

In response to Madrid Plan, in October 2003, the Statute of the Older Persons (in Portuguese, Estatuto do Idoso) was approved. With its 118 articles, the Statute consolidates various federal, state, and city rights regarding health, education, culture, sports and leisure, professionalization and work, social security, social assistance, housing, transportation, surveillance of care entities, and classification of crimes against the older persons [18, 27].

In October 2006, the National Policy on the Health of the Older Persons (NPHOP) was created [18, 28]. This new health policy for older persons had the objective of allowing healthy aging, which means preserving its functional capacity, its autonomy and maintaining the level of quality of life, following the principles and guidelines of the Unified Health System (SUS), which direct individual and collective measures at all levels of health care. Also, this policy was concerned with the implementation of the actions and guiding the continuous evaluation process and considering possible adjustments determined by the practice [10].

An inalienable challenge to the policy formulation and implementation process public is the monitoring and evaluation of their goals. In Brazil, the PNSPI, defined the older population as a priority group, implementing a specific policy, and a monitoring indicators system. However, in 2012, in the transition process between the PNSPI and the Organizational Contract of Public Health Action (in Portuguese, Contrato Organizativo de Ação Pública de Saúde), the prioritization of the older persons was lost, losing also specific indicators monitoring of SUS service conditions for this group of the population [29]. So, despite the important evolution of the Brazilian regulatory framework for the health of older persons, and policies implemented have solid foundations; however, monitoring indicators systems are insufficient to express the impact on reality.

These facts must explain the scarce literature that addresses public policies related to the older population in allowing the monitoring of the current policy for older persons in Brazil [29]. A recent qualitative study to evaluate the implementation of the NPHOP in a municipal setting of the Ceará State involving intersectoriality, own budget, and the social participation of the older adults established that this policy is still in the process of being improved at the municipal level, subject to a re-discussion of policy planning, mainly because professionals do not have a clear notion of its existence, as well as its functioning at the municipal environment [30].

2. Methods

A cross-sectional study included noninstitutionalized adult people aged 60 or over (OA60+) residents in Brazil. The data come from the last Brazilian National Health Survey or Pesquisa Nacional de Saude (2019-PNS), conducted by the IBGE in partnership with the Ministry of Health [31].

The 2019-PNS is a household-based survey representative of the Brazilian non-institutionalized population at the national, regional, state, and major metropolitan area levels. The selected sample originated from a IBGE master sample, stratified into three cluster stages: census tracts selected with proportional probability, households selected by simple random, and individual aged 15 or over randomly selected within each household. The interviews were carried out between August 2019 and March 2020 by trained teams using smartphone devices programmed with the survey questionnaire and the processes of criticizing the variables. A total of 90,846 households and 275,323 individuals were interviewed. The response rate for households was 93.6% [31].

To avoid selection bias, older adults who answered the module about functional health by themselves or another household resident were included in the analysis. Then, the sample for the current analysis includes data from 42,274 surveys corresponding to noninstitutionalized people aged 60 or more.

Basic Activities Daily Living is defined as the primary activities aimed at self-care and mobility of individuals, involving a minimum cognitive effort that offers autonomy and independence to live without needing continuous help from others [32]. The BADLs included in this study were eating, bathing, personal mobility, using the toilet, getting in/out of bed, dressing, and sitting down/getting up off a chair. In the 2019-PNS survey, each BADL variable has four-category impairment levels: cannot do it, has great difficulty, has little difficulty, and has no difficulty. For the analysis, BADL variables were aggregated into two levels: little difficulty and great difficulty/cannot do it. The BADL functional limitations prevalence rates for 1000 surveyed, stratified by sex, were calculated for overall and aggregate levels of the functional limitations.

On the other hand, the 2019-PNS survey collected data on monetary and non-monetary contributions to household incomes. Once the data have been collected, IBGE calculates monthly household income in nominal terms, excluding those whose status was pensioner, in-door domestic worker, or relative of the in-door domestic worker. Household income is the sum of all the payments received by all the household members from work and other income sources, such as pensions, rent, financial investments return, social programs, or any other income [33].

In the present study, the health inequalities in the OA60+ sample were measured by linking the individual BADL's functional limitations rate stratified by sex with the household income deciles. The first decile (I) represents the poorest 10% of households, and the tenth decile (X), represents the richest 10% of households.

Considering the negative connotation of the health variable and helping to facilitate the interpretation of the differences in functional health inequalities across household income deciles groups, the 10/10, 20/20 and 40/10 inequalities indexes were calculated. Index 10/10 shows the relationship between the BADL's functional limitations rate exhibited by 10% with the lowest total household income and the corresponding 10% of higher-income households. Index 20/20 shows the relationship between the BADL's functional limitations rate exhibited by 20% lowest total household income and the corresponding 20% of higher-income households. Finally, an index of 40/10 shows the relationship between the BADL's functional limitations rate exhibited by 40% with the lowest total household income and the corresponding 10% of higher-income households.

Furthermore, a family caregiving rate was calculated to evaluate the intergenerational support with OA60+. Data from the same survey allow for building a ratio between relatives living in the same house and providing help to older people with BADL limitations with the register of all surveyed aged 15 or over declaring to work in caring for people at home. However, data do not allow discrimination of the caregiver sex for older adults surveyed. Therefore, the total aged 15 or over declaring to work in caring for people at home was used in the rate denominator. The family caregiver rate by deciles across the BADL's limitations, expressed for 1000 surveyed, was included in the secondary axis in the graphs.

The statistical significance of the difference in the analyzed variables was tested using Wald's chi-square statistic. We accepted a level of significance of 5% in the test, and Stata SE/14.0 was used for the analyses.

3. Results

The 2019-PNS Survey surveyed 43,554 OA60+, representing 14.8% of the total sample. After excluding individuals whose BADL data were provided by relatives who did not reside with them (n: 1.261) and without household income recorded (n: 19),

the analyzed sample was 42,274 individuals, of which 56% were women. In the sample, 70% of the questionnaires were answered by OA60+ themselves. The average age of the women in the sample was 70.1 years (SD: 8.14) and 69.5 years (SD: 7.66) for men. Thirty-five percent of the OA60+ lived in the northeast, 24% in the southeast, 16% in the north, 14% in the south, and 10% in the central west region.

Forty-five percent of the OA60+ surveyed were self-referred as brown-skinned, 43% white, 11% black, and the other 2% were indigenous and oriental ethnicities. Fifty-two percent were married, and 76% lived in urban areas; however, most women (80%) lived in urban areas compared to 72% of men. These differences were statistically significant. Regarding the education level, 21% of the OA60+ were unscholarly, 44% were incomplete elementary school, and 10% graduated. The education level of women was better than men, and the differences were statistically significant. Individuals in the 1st and 10th deciles had an average monthly household income of (December 2019) US $87.5 and $4311.4, respectively. The median household income value in OA60+ in the 10th decile was 43 times higher than those in the 1st decile.

Twenty-five percent of OA60+ have health insurance, and just 8% have dental insurance. Twenty-eight percent of the OA60+ surveyed have two or more chronic diseases; however, most women (31%) were affected by chronic diseases compared to 23% of men. These differences were statistically significant. In addition, 35% state that chronic diseases restrict their usual activities; women (39%) are significantly more affected than men (30%). In general, 44% of the OA60+ surveyed reported a "good/very good", 43% "fair" and 13% "bad/very bad" self-rated health (SRH) status. The SRH status of women was worse than men, and the differences were statistically significant.

3.1 Prevalence rate of the BADL functional limitations

To make reading easier for the reader, the BADLS functional limitations categories "little difficulty" and "great difficulty/cannot do it "will be summarized as mild and severe limitations, respectively.

In the data, an overall prevalence of functional limitations in at least one BADL was 21%. Disaggregated by sexes; 24% in women and 17% in men. **Table 1** shows the prevalence rate of BADL's functional limitations among both sexes of the OA60+. The differences along all BADL categories between sexes were statistically significant (p < 0.001).

Getting in/out of bed was the basic daily activity that showed the most significant functional limitations in both sexes, followed by dressing, sitting down/getting up a chair, and personal mobility. Women presented more severe functional limitations in all BADLs than men.

An analysis by five-year age groups shows that the prevalence rates in all analyzed BADL's functional limitations and their severity increase with age in both sexes. In general, women have higher rates of limitations in BADL than men in all age groups. Differences between sex were statistically significant (p < 0.0001) for mild BADL functional limitation and just in the 60–64 and 80+ year groups in those with severe BADL functional limitation. Concerning the number of compromised BADLs, the prevalence also increases with age and is higher in women. Regarding potential caregivers of the OA60+, on average, there are 2.6 residents over 15 years of age in the home of people with functional limitations in one or more BADLs. Women, on average, represent 64% of the total family caregiver, and this role decreases across de poorest (70%) to the wealthiest (59%) deciles. On the other hand, 38% of the OA60+ with functional limitations in one or more BADLs need help, and 93% receive it.

BADLs	men (n: 18,753)	women (n: 23,521)
Eating functional limitation	**5.1%**	**6.1%**
• great/cannot do it	2.4%	2.7%
• little	2.7%	3.4%
Bathing functional limitation	**6.7%**	**9.4%**
• great/cannot do it	3.6%	4.9%
• little	3.1%	4.6%
Personal mobility functional limitation	**9.4%**	**13.5%**
• great/cannot do it	4.7%	6.0%
• little	4.7%	7.5%
Using the toilet functional limitation	**8.0%**	**11.0%**
• great/cannot do it	4.5%	5.7%
• little	3.5%	5.3%
Getting in/out bed functional limitation	**10.5%**	**14.7%**
• great/cannot do it	4.6%	6.0%
• little	5.9%	8.7%
Dressing functional limitation	**10.2%**	**13.9%**
• great/cannot do it	4.3%	5.6%
• little	5.9%	8.3%
Sitting down/getting up off chair functional limitation	**9.9%**	**14.3%**
• great/cannot do it	4.4%	5.6%
• little	5.5%	8.7%

Table 1.
The prevalence rate of BADL functional limitation.OA60+ Brazil 2019.

Seventy-five percent of men in 1st and 2nd deciles received help mainly from family caregivers and 15% from relatives living outside the home. On the other hand, men in 9th and 10th deciles received help provided for family caregivers (80%), relatives living outside the home (2%), and formal (paid) caregivers (12%).

Help for women in 1st and 2nd deciles was provided by family caregivers (60%) and relatives living outside the home (29%). For women in 9th and 10th deciles, help was provided by family caregivers (74%), by formal caregivers (14%), and marginally by relatives living outside the home (4%). The differences between the sexes were only statistically significant concerning relatives outside the home. Nurses or technicians hired and paid to provide care represented 4.6%. However, there are statistically significant differences in using these services between the first two (3%) and the last two (12%) income deciles in both sexes.

3.2 Socioeconomic inequalities in the BADL functional limitations

The relationship between BADL's prevalence rates and income deciles varies according to the type of BADL, sex, age, severity, and the number of activities involved. In both sexes, the number of BADLs committed increases with age. On the

other hand, in both sexes and through the deciles, the prevalence rate decreases as the number of involved BADLS grows to five, then increases when the affected activities are six or seven.

The following graphs show the gradient of both categories of the BADL functional limitation rates, moving from the poorest to the wealthiest deciles in both sexes. Additionally, to compare the intergenerational support in BADLs functional limitations functional of the older adults, the secondary axis in the graphs includes the family caregiving rate across household incomes deciles. Subsequently, the relative differences in BADL limitations and family caregiving rates between household income deciles were compared using the inequality indexes.

In all graphs, the trend of prevalence rates of the mild limitation shows a consistently linear decreasing gradient from the poorest to the wealthiest deciles in both sexes. For dressing and sitting down/getting up off a chair functional limitations, the gradient was more pronounced in men. On the other hand, in both sexes, trends of the prevalence rate for severe limitations in all BADLs, resemble an inverted convex parabolic curve, in most increasing up to the 5th to decreasing to the 10th decile. For bathing and dressing functional limitations, the trend curves increase up to the 7th to decrease to the 10th decile in both sexes and for eating limitations in women.

Figure 1 shows the trends of eating limitations and family caregiver rates in both BADL categories and sexes. On both categories of eating functional limitation rates, the sex differences were consistent and statistically significant in the two wealthiest deciles ($p < 0.001$).

Concerning the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes; however, excepting care in severe limitations in the two poorest deciles, women have better caregiving rate than men in both eating BADL limitation categories. In the mild category, the sex differences in the family caregiving rate were only statistically significant ($p < 0.01$) in the 5th, 9th, and 10th deciles. The sex differences in the family caregiving rate in the severe category were statistically significant in the four wealthiest deciles ($p < 0.01$).

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **1.6, 2.3,** and **2.5** times more mild eating limitations than the 10%, 20%, and 10% of the wealthiest men, respectively. These differences were only statistically significant ($p < 0.0001$) for the 20/20 and 40/10 indexes. On the other hand, men's poorest 10%, 20%, and 40% show **1.3, 2.7,** and **1.7** times more severe eating limitations than the
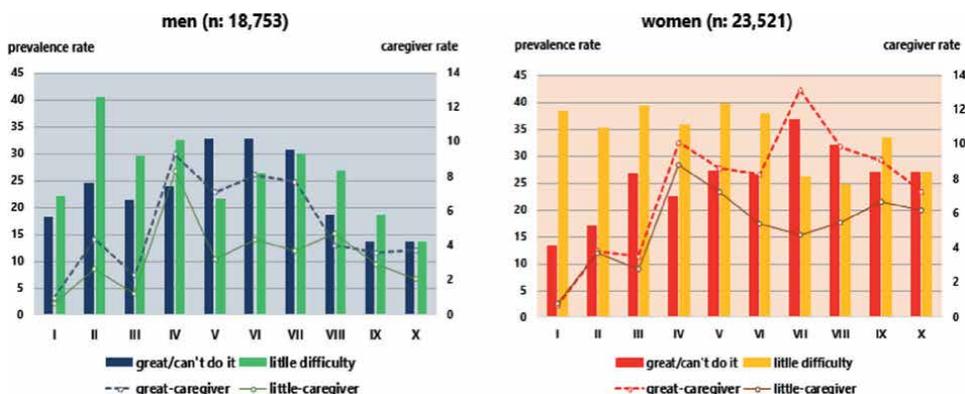

Figure 1.
Eating functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant ($p < 0.005$) for the 20/20 and 40/10 indexes.

Regarding family caregiving, the men's wealthiest 10% and 20% received **3.2** and **1.6** times more care by family caregivers when they had mild eating limitations than the poorest 10% and 20% of men, respectively. The difference was only statistically significant ($p < 0.05$) for the 10/10 index. Conversely, men's poorest 40% received **1.6** times more care from family caregivers when they had mild eating limitations than the wealthiest 10% of men. This difference was not statistically significant. On the other hand, the men's wealthiest 10% and 20% received **3.9** and **1.4** times more care by family caregivers when they have severe eating limitations than the poorest 10% and 20% of men, respectively. The differences were only statistically significant ($p < 0.005$) for the 10/10 index. The 40/10 index shows that the poorest 40% received **1.14** times more care from family caregivers when they have severe eating limitations than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.4**, **1.2,** and **1.3** times more mild eating limitations than the 10%, 20%, and 10% wealthiest women, respectively. The difference was only statistically significant ($p < 0.05$) for the 40/10 index. On the other hand, women's wealthiest 10%, 20%, and 10% show **2.0, 1.6,** and **1.3** times more severe eating limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.05$).

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **7.7**, **2.9,** and **1.5** times more care from family caregivers when they have mild eating limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.005$). Concerning severe eating limitations, women's wealthiest 10%, 20%, and 10% receive **11.3**, **3.8,** and **1.6** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.01$).

Figure 2 shows the trends of bathing limitations and family caregiver rates in both BADL categories and sexes. In mild bathing limitation prevalence rates, excepting the 2nd decile, the sex differences were statistically significant ($p < 0.05$). In severe bathing limitations, the differences between both sexes were only statistically significant in the higher three deciles ($p < 0.01$).

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women
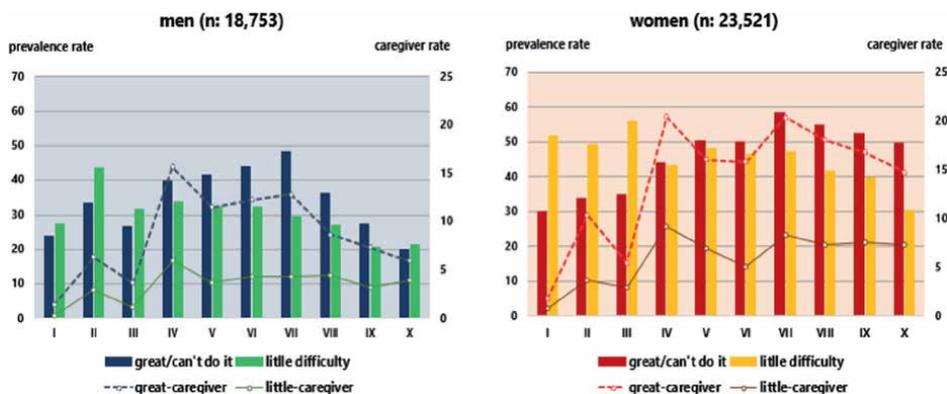
Figure 2.
Bathing functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

across all deciles and both bathing limitation categories. In the mild category, the sex differences in the family caregiving rate excepting 1st, 2nd, and 6th deciles were statistically significant ($p < 0.05$) in the rest of the deciles. The sex differences in the family caregiving rate in the severe category were firmly statistically significant in the four wealthiest deciles ($p < 0.001$) and less significant in the 2nd, 4th, and 5th deciles ($p < 0.05$).

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **1.3, 1.9,** and **1.7** times more mild bathing limitations than the 10%, 20%, and 10% wealthiest men, respectively. These differences were only statistically significant ($p < 0.001$) for the 20/20 and 40/10 indexes. On the other hand, men's poorest 10%, 20%, and 40% show **1.2, 1.4,** and **1.8** times more severe bathing limitations than the wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant ($p < 0.05$) for the 20/20 and 40/10 indexes.

Regarding family caregiving, the men's wealthiest 10%, 20%, and 10% received **12.2, 2.2,** and **1.5** times more care by family caregivers when they have mild bathing limitations than the poorest 10%, 20%, and 40% of men, respectively. The difference was only statistically significant ($p < 0.005$) for the 10/10 and 20/20 indexes. On the other hand, the men's wealthiest 10% and 20% received **4.1** and **1.8** times more care from family caregivers when they have severe bathing limitations than the poorest 10% and 20% of men, respectively. The differences were statistically significant ($p < 0.005$). The 40/10 index shows that men's poorest 40% received **1.14** times more care from family caregivers when they have severe bathing limitations than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.7, 1.4,** and **1.6** times more mild bathing limitations than the 10%, 20%, and 10% wealthiest women, respectively. These differences were statistically significant ($p < 0.01$). On the other hand, women's wealthiest 10%, 20%, and 10% show **1.7, 1.5,** and **1.3** times more severe bathing limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.05$).

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **9.1**, **3.4,** and **1.7** times more care from family caregivers when they have mild bathing limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.005$). Concerning severe bathing limitations, women's wealthiest 10%, 20%, and 10% receive **8.3, 2.7,** and **1.5** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.0005$).

Figure 3 shows the trends of personal mobility limitations and family caregiver rates in both BADL categories and sexes. In mild personal mobility limitation prevalence rates, the sex differences were statistically significant ($p < 0.05$) across all deciles. In severe personal mobility limitations, the differences between both sexes were only statistically significant in the higher three deciles ($p < 0.01$).

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women across all deciles and both personal mobility limitation categories. In the mild category, the sex differences in the family caregiving rate, excepting 1st, 6th, and 10th deciles, were statistically significant ($p < 0.05$) in the 2nd, 4th, 7th, and 9th deciles. Marginal statistical differences ($p < 0.06$) were observed in the 3rd, 5th, and 8th deciles. The sex differences in the family caregiving rate in the severe category were firmly statistically significant in the three wealthiest deciles ($p < 0.001$) and less significant in the 2nd, 5th, 6th, and 7th deciles ($p < 0.05$).
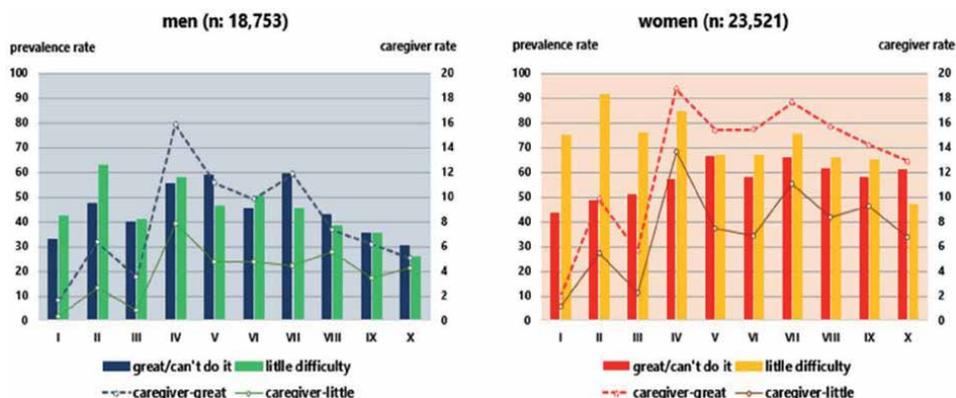
Figure 3.
Personal mobility functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **1.6, 2.0,** and **2.2** times more mild personal mobility limitations than the 10%, 20%, and 10% wealthiest men, respectively. These differences were statistically significant (p < 0.05). On the other hand, men's poorest 10%, 20%, and 40% show **1.1, 1.4,** and **1.6** times more severe personal mobility limitations than the wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant (p < 0.01) for the 20/20 and 40/10 indexes.

Regarding family caregiving, the men's wealthiest 10%, 20%, and 10% received **13.3**, **2.7,** and **1.5** times more care by family caregivers when they have mild personal mobility limitations than the poorest 10%, 20%, and 40% of men, respectively. The difference was only statistically significant (p < 0.001) for the 10/10 and 20/20 indexes. On the other hand, the men's wealthiest 10% and 20% received **3.1** and **1.5** times more care from family caregivers when they have severe personal mobility limitations than the poorest 10% and 20% of men, respectively. The differences were statistically significant (p < 0.05). The 40/10 index shows that men's poorest 40% received **1.4** times more care from family caregivers when they have severe personal mobility limitations than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.6**, **1.6,** and **1.8** times more mild personal mobility limitations than the 10%, 20%, and 10% wealthiest women, respectively. These differences were statistically significant (p < 0.01). On the other hand, women's wealthiest 10%, 20%, and 10% show **1.4**, **1.3,** and **1.2** times more severe personal mobility limitations than the poorest 10%, 20%, and 40% of women, respectively. However, the difference was statistically significant (p < 0.05) only for the 20/20 index.

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **6.0**, **2.5,** and **1.2** times more care from family caregivers when they have mild personal mobility limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were only statistically significant (p < 0.0001) for the 10/10 and 20/20 indexes. Concerning severe personal mobility limitations, women's wealthiest 10%, 20%, and 10% receive **6.7**, **2.4,** and **1.4** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.01).
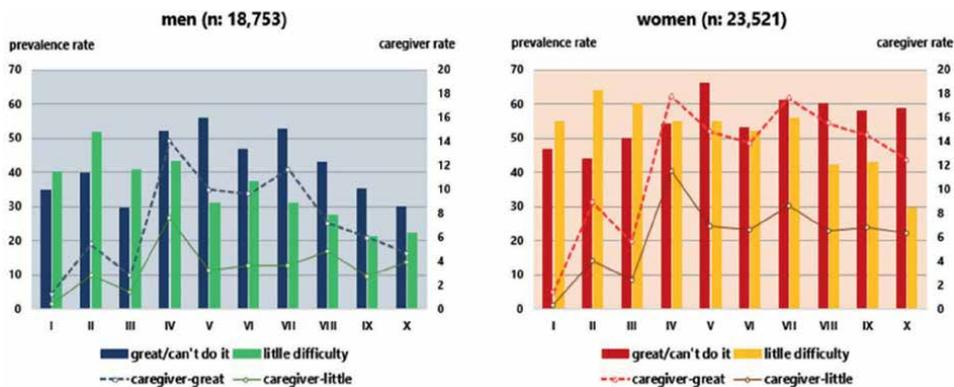
Figure 4.
Using the toilet functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

Figure 4 shows the trends of using the toilet limitations and family caregiver rates in both BADL categories and sexes. In mild using the toilet limitation prevalence rates, excepting 1st, 2nd, and 10th deciles, the sex differences were statistically significant (p < 0.05) across the rest of the deciles. In severe using the toilet limitations, the differences between both sexes were only statistically significant (p < 0.05) in the 3rd and 8th deciles and strongly statistically significant in the wealthiest two deciles (p < 0.001).

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women across all deciles and using the toilet limitation categories. In the mild category, the sex differences in the family caregiving rate were statistically significant (p < 0.05) in the middle 4th to 7th deciles and 9th decile. The sex differences in the family caregiving rate in the severe category were firmly statistically significant in the three wealthiest deciles (p < 0.001) and less significant in the 2nd, 3rd, 5th, 6th, and 7th deciles (p < 0.05).

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **1.8, 2.3,** and **2.0** times more mild using toilet limitations than the 10%, 20%, and 10% wealthiest men, respectively. These differences were statistically significant (p < 0.05). On the other hand, men's poorest 10%, 20%, and 40% show **1.2, 1.2,** and **1.5** times more severe using toilet limitations than the wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant (p < 0.05) for the 40/10 index.

Regarding family caregiving, the men's wealthiest 10%, 20%, and 10% received **8.1, 2.1,** and **1.3** times more care by family caregivers when they have mild using the toilet limitations than the poorest 10%, 20%, and 40% of men, respectively. The difference was only statistically significant (p < 0.05) for the 10/10 and 20/20 indexes. On the other hand, the men's wealthiest 10% and 20% received **3.6** and **1.6** times more care from family caregivers when they have severe using toilet limitations than the poorest 10% and 20% of men, respectively. The differences were statistically significant (p < 0.05). The 40/10 index shows that men's poorest 40% received **1.3** times more care from family caregivers when they have severe using toilet limitations than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.9**, **1.7,** and **2.0** times more mild using toilet limitations than the 10%, 20%, and 10% wealthiest women, respectively.

These differences were statistically significant ($p < 0.01$). On the other hand, women's wealthiest 10%, 20%, and 10% show **1.3, 1.3,** and **1.2** times more severe using toilet limitations than the poorest 10%, 20%, and 40% of women, respectively. However, the difference was statistically significant ($p < 0.05$) only for the 20/20 index.

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **19.7, 3.2,** and **1.4** times more care from family caregivers when they have mild using toilet limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were only statistically significant ($p < 0.0001$) for the 10/10 and 20/20 indexes. Concerning severe using toilet limitations, women's wealthiest 10%, 20%, and 10% receive **8.6, 2.7,** and **1.6** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant ($p < 0.05$).

Figure 5 shows the trends of getting in/out of bed limitations and family caregiver rates in both BADL categories and sexes. In mild getting in/out of bed limitation prevalence rates, excepting the 1st decile, the sex differences were statistically significant ($p < 0.05$) across the rest of the deciles. In severe getting in/out of bed limitations, the differences between both sexes were only statistically significant ($p < 0.05$) in the 9th decile and strongly statistically significant in the 10th decile ($p < 0.0001$).

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women across all deciles and getting in/out of bed limitation categories. In the mild category, the sex differences in the family caregiving rate were statistically significant ($p < 0.05$) after the 4th deciles. The sex differences in the family caregiving rate in the severe category were statistically significant in the five wealthiest deciles ($p < 0.01$) and also significant in the 2nd decile ($p < 0.05$).

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **2.3, 2.7,** and **2.5** times more mild getting in/out of bed limitations than the 10%, 20%, and 10% wealthiest men, respectively. These differences were firmly statistically significant ($p < 0.0001$). On the other hand, men's poorest 10%, 20%, and 40% show **1.4, 1.5,** and **1.7** times more severe getting in/out of bed limitations than the wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant ($p < 0.001$) for the 20/20 and 40/10 indexes.

Regarding family caregiving, men's wealthiest 10% and 20% received **4.9** and **1.5** times more care by family caregivers when they have mild getting in/out of bed
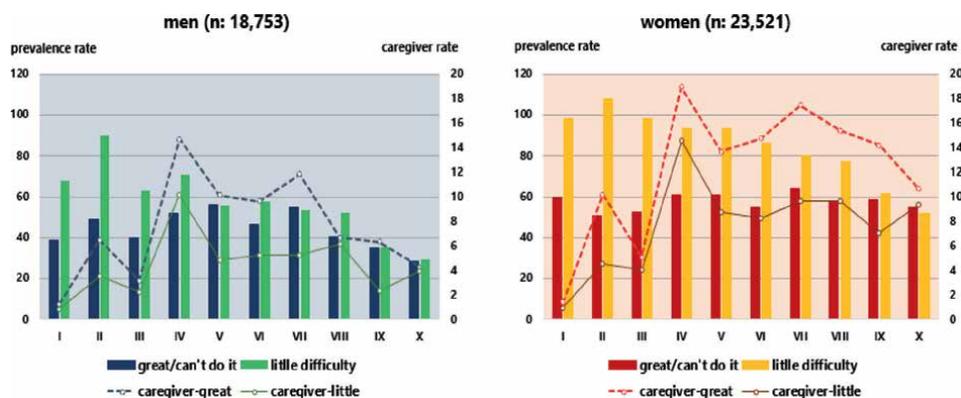

Figure 5.
Getting in/out of bed functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

limitations than the poorest 10% and 20% of men, respectively. The difference was only statistically significant (p < 0.05) for the 10/10 index. The 40/10 index shows that men's poorest 40% received **1.1** times more care from family caregivers when they have mild getting in/out of bed limitations than the wealthiest 10% of men. This difference was not statistically significant. On the other hand, the men's wealthiest 10% and 20% received **3.3** and **1.4** times more care from family caregivers when they have severe getting in/out of bed limitations than the poorest 10% and 20% of men, respectively. The difference was only statistically significant (p < 0.05) for the 10/10 index. The 40/10 index shows that men's poorest 40% received **1.5** times more care from family caregivers when they have severe getting in/out of bed limitations than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.9**, **1.9,** and **1.9** times, more mild getting in/out of bed limitations than the 10%, 20%, and 10% wealthiest women, respectively. These differences were strongly statistically significant (p < 0.001). On the other hand, women's poorest 10% and 40% show **1.09** and **1.02** times more severe getting in/out of bed limitations than the wealthiest 10% of women, respectively. These differences were not statistically significant. The 20/20 index shows that 20% of wealthiest women have **1.09** times more severe getting in/out of bed limitations than the poorest 20% of women. This difference was not statistically significant.

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **9.7**, **3.0,** and **1.5** times more care from family caregivers when they have mild getting in/out of bed limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.005). Concerning severe getting in/out of bed limitations, women's wealthiest 10%, 20%, and 10% receive **7.4**, **2.2,** and **1.2** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were only statistically significant (p < 0.001) for the 10/10 and 20/20 indexes.

Figure 6 shows the trends of dressing limitations and family caregiver rates in both BADL categories and sexes. In mild dressing limitation prevalence rates, excepting the three poorest deciles, the sex differences were statistically significant (p < 0.05) across the rest of the deciles. In severe dressing limitations, the differences between both sexes were only statistically significant (p < 0.001) in the wealthiest three deciles.

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women across all deciles and dressing limitation categories. In the mild category, the sex differences in the family caregiving rate were statistically significant (p < 0.05) after the 4th decile. The sex differences in the family caregiving rate in the severe category, excepting the 1st decile, were statistically significant (p < 0.05) in the remaining deciles and firmly significant (p < 0.001) in the three wealthiest deciles.

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **1.9, 1.9,** and **1.9** times more mild dressing limitations than the 10%, 20%, and 10% wealthiest men, respectively. These differences were statistically significant (p < 0.001). On the other hand, men's poorest 10%, 20%, and 40% show **1.5, 1.6,** and **2.1** times more severe dressing limitations than the wealthiest 10%, 20%, and 10% of men, respectively. The difference was only statistically significant (p < 0.001) for the 20/20 and 40/10 indexes.

Regarding family caregiving, men's wealthiest 10% and 20% and 10% received **9.7**, **1.9,** and **1.5** times more care by family caregivers when they have mild dressing limitations than the poorest 10%, 20%, and 40% of men, respectively. The difference
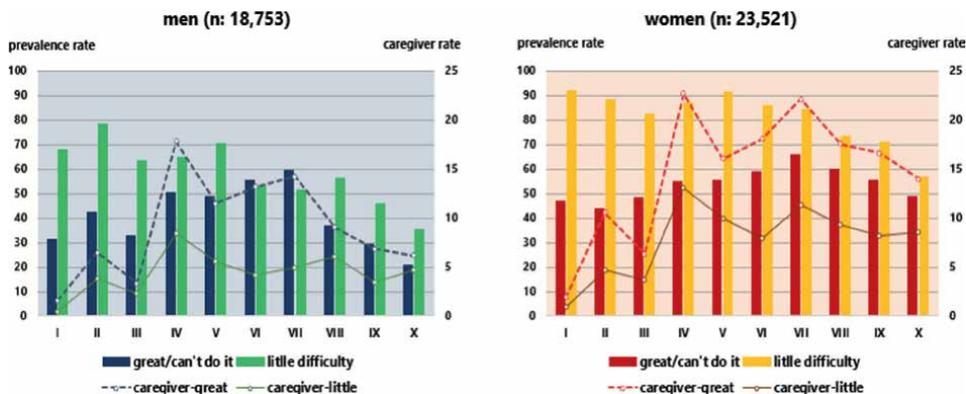
Figure 6.
Dressing functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

was only statistically significant (p < 0.05) for the 10/10 and 20/20 indexes. On the other hand, the men's wealthiest 10% and 20% received **3.8** and **1.7** times more care from family caregivers when they have severe dressing limitations than the poorest 10% and 20% of men, respectively. The differences were statistically significant (p < 0.005). The 40/10 index shows that men's poorest 40% received **1.2** times more care from family caregivers when they have severe dressing limitations than the wealthiest 10% of men. This difference was not statistically significant. Including care by other relatives, nurses, or technicians paid for in both groups of the 40/10 index still shows that the poorest 40% of men received **1.1** times more care than the wealthiest 10%. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **1.6**, **1.4,** and **1.5** times more mild dressing limitations than the 10%, 20%, and 10% wealthiest women, respectively. These differences were statistically significant (p < 0.005). On the other hand, women's wealthiest 10% and 20% show **1.05** and **1.2** times more severe dressing limitations than the poorest 10% and 20% of women, respectively. These differences were not statistically significant. The 40/10 index shows that 40% of the poorest women have **1.01** times more severe dressing limitations than the wealthiest 10% of women. This difference was not statistically significant.

Concerning family caregiving, women's wealthiest 10%, 20%, and 10% receive **8.9**, **3.0,** and **1.5** times more care from family caregivers when they have mild dressing limitations than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.01). Concerning severe dressing limitations, women's wealthiest 10%, 20%, and 10% receive **7.3**, **2.5,** and **1.3** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.005).

Figure 7 shows the trends of sitting down/getting up off a chair limitations and family caregiver rates in both BADL categories and sexes. In mild sitting down/getting up off a chair limitation prevalence rates, excepting the 1st, 2nd, 4th, 7th, and 8th deciles, the sex differences were statistically significant (p < 0.05) across the remaining deciles. In severe sitting down/getting up off a chair limitation, the differences between both sexes were statistically significant (p < 0.01) in the wealthiest three deciles.

Regarding the family caregiving rate, the poorest three deciles show lower caregiving support in both sexes. Higher caregiving rates were observed in women across all deciles and sitting down/getting up off a chair limitations categories. In the mild
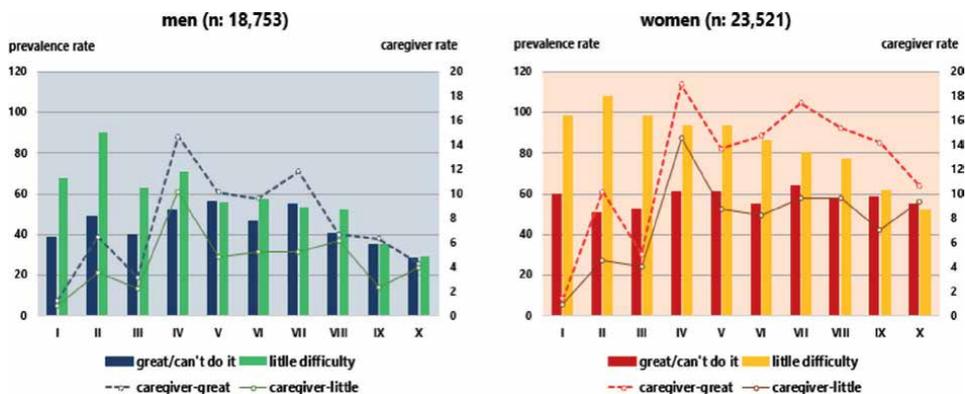
Figure 7.
Sitting down/getting up off a chair functional limitation in OA60+. Prevalence & Family caregiver rates by 1000 surveyed. Brazil 2019.

category, the sex differences in the family caregiving rate, except for the two poorest deciles, the remaining were statistically significant (p < 0.05). The sex differences in the family caregiving rate in the severe category, excepting the six poorest deciles, were statistically significant (p < 0.005).

According to the inequality indexes, the men's poorest 10%, 20%, and 40% show **2.2, 2.5,** and **2.3** times more mild sitting down/getting up off a chair limitation than the 10%, 20%, and 10% wealthiest men, respectively. These differences were statistically significant (p < 0.001). On the other hand, men's poorest 20% and 40% show **1.2** and **1.5** times more severe sitting down/getting up off a chair limitation than the wealthiest 20% and 10% of men, respectively. The difference was only statistically significant (p < 0.005) for the 40/10 index. Conversely, men's wealthiest 10% show **1.08** times more severe sitting down/getting up off a chair limitation than the poorest 10% of men which was not statistically significant.

Regarding family caregiving, men's wealthiest 10% and 20% and 10% received **3.8, 1.5,** and **1.1** times more care by family caregivers when they have mild limitations sitting down/getting up off a chair than the poorest 10%, 20%, and 40% of men, respectively. The difference was only statistically significant (p < 0.05) for the 10/10 index. On the other hand, the men's wealthiest 10% and 20% received **3.6** and **1.5** times more care from family caregivers when they have severe limitations sitting down/getting up off a chair than the poorest 10% and 20% of men, respectively. The differences were statistically significant (p < 0.05). The 40/10 index shows that men's poorest 40% received **1.3** times more care from family caregivers when they have severe limitations sitting down/getting up off a chair than the wealthiest 10% of men. This difference was not statistically significant.

The poorest women, 10%, 20%, and 40%, show **2.1, 1.8,** and **1.9** times more mild limitations sitting down/getting up off a chair than the 10%, 20%, and 10% wealthiest women, respectively. These differences were statistically significant (p < 0.001). On the other hand, women's wealthiest 10%, 20%, and 10% show **1.2, 1.2,** and **1.1** times more severe limitations sitting down/getting up off a chair than the poorest 10%, 20%, and 40% of women, respectively. The difference was only statistically significant (p < 0.05) for the 20/20 index.

Concerning family caregiving, women's wealthiest 10%, 20% and 10% receive **1.5, 2.9,** and **1.5** times more care from family caregivers when they have mild limitations

sitting down/getting up off a chair than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.005). Concerning severe limitations sitting down/getting up off a chair, women's wealthiest 10%, 20%, and 10% receive **7.2**, **2.6,** and **1.4** times more care by family caregivers than the poorest 10%, 20%, and 40% of women, respectively. These differences were statistically significant (p < 0.05).

4. Discussion

Aging in Brazil occurs in the context of deep and persistent income, gender and ethnic inequalities, intensely challenging the health, retirement, and social protection systems. Significant socioeconomic disparities were evident in the sample. In the OP60+ with one or more BADLs, the illiteracy rate in the poorest two deciles were 15 and 5 time more than the two wealthiest deciles in men and women, respectively. Additionally, the average household income in the two wealthiest deciles was over 16 times more than the two poorest deciles. Also, ethnic differences between deciles are relevant; OP60+ men declared black, skin-browned, or indigenous in the two poorest deciles show two times more BADLs prevalence rate than white in the two wealthiest deciles. In women, this difference was 1.5 times. These differences were strongly statistically significant (p < 0.0001).

The results show an overall prevalence rate of functional limitations in at least one BADL of the 21% and disaggregated by sexes was 24% for women and 17% for men. This prevalence is increased regarding the previous 16% from 2013-PNS; however, it must be noted that this study considered just six BADLs [34] and higher than that observed in a previous study carried out in Brazil by Veloso et al. considering five BADLs in a sample data of 986 people aged 60 years or over from municipality of Campinas, São Paulo in 2014/15, shows a prevalence of 8.4% [35]. Thus, the differences in prevalence between studies depend on the functional health limitations of the target populations and methodological aspects such as type of instruments for assessing functional health or the number of BADLs analyzed; thus, comparability of the findings of this study with others is limited.

Getting in/out of bed was the most relevant functional limitation involved, followed by sitting down/getting up off a chair and dressing in both sexes, suggesting permanent caregiver help and care. Women presented more severe functional limitations in all BADLs than men, and the differences were statistically significant.

The results support the importance of distinguishing the degrees of severity of BADLs because, as a continuum of severity, it allows quantifying a vulnerable group that could benefit from implementing interventions that maintain or improve their physical and functional abilities. Except for bathing BADL, the mild category prevalence rates were more remarkable than the severe category in all the other BADLs. The prevalence rates of the mild limitation in all BADLs show a linear decreasing trend across deciles in both sexes. This trend suggests that mild BADL limitations are related more to household income gradient than other factors. Furthermore, the relatively high prevalence rates of mild limitation in getting in/out of bed, sitting down/getting up chair, dressing, and personal mobility in women could be an opportunity window from a dependency prevention perspective.

However, trends of the prevalence rate for severe limitation in all BADLs resemble better invert convex parabolic curves, increasing up to the 7th and then decreasing to the 10th decile. Factors beyond the economic gradient may contribute to explaining

this trend. In both sexes, the OP60+ in the two poorest deciles are younger than those in the middle and two wealthiest deciles. Also, they have a household head role which implies active provider participation, then more likely to maintain them physically active. Also, the survival bias cannot be ruled out either, considering that individuals of lower socioeconomic levels tend to have higher premature mortality. Other factors to consider could be less likely to receive care or that the poorest have a higher level of resilience, underestimating the severity of the functional limitation.

In both sexes OP60+ with severe BADLs limitation, the two poorest deciles are 6 and 7 years for men and women, respectively, younger than those in the middle and two wealthiest deciles. Furthermore, the household head rate in the poorest two deciles was 2.5% for men and 3.2% for women, compared with 1.7% and 3.0% in the wealthiest two deciles in men and women, respectively. The difference was only statistically significant for men ($p < 0.02$). Regarding care availability, women in the poorest two deciles show a 4.1% caregiver rate compared with 6.1% of the women in the wealthy two deciles. The difference was statistically significant ($p < 0.0001$). Men show lower availability of caregivers than women, and the difference between the poorest two and wealthiest two deciles was insignificant.

A noteworthy finding complementing the inverted convex parabolic curves explanation is the high prevalence rates of severe limitations in BADLs across the middle deciles (4th to 7th), particularly in men. One possible explanation is that the so-called "middle class" manifests in this way the long-term adverse effects of a consumer society that conditions unhealthy lifestyles, such as unhealthy eating, lower physical activity, or sedentarism, factors associated with functional health limitations. Analysis with the same data show that OP60+ belonging to middle deciles with severe BADLs limitation in both sexes had significantly ($p < 0.05$) lower physical activity (<150 min/week) rates than the first three poorest and the last three wealthiest deciles.

These results are consistent with other studies documenting social inequalities on the physical functioning of Brazilian older adults. Lima-Costa et al. showed a strong gradient across education level and household assets [16, 36, 37]. Bof de Andrade et al. (2018) with a nationally representative sample of adults aged 50 years or older indicated that inequalities in BADLs limitation are primarily explained by socioeconomic status (wealth and own education), not by demographic or health factors [38]. On the other hand, Veloso et al. does not found a significant association between dependence on 5-BADLs and family income [35].

Association of socioeconomic inequalities and functional health in older adults, also have been documented in other countries. Lai et al. using data from longitudinal older adults aged 70+ followed them for 10 years in Hong Kong, found that older adults with lower socioeconomic status (SES) were more prone to ADL disability; and such inequalities accentuated with time [39]. Olivares-Tirado and Zanga using data from the Chilean 2017 National Socioeconomic Characterization Survey, indicated a descending gradient of both severity levels on six BADL functional limitation rates, moving from the poorest to the wealthiest deciles in both sexes, suggesting significant socioeconomic inequalities in functional health among older adults in Chile [40]. Stefler et al. indicated a consistently higher risk of low physical and cognitive functioning in participants with lower education or income but the magnitude of these inequalities varies across different social contexts [41]. Acciai using growth curve models show that for self-rated health and physical functioning in individual aged 50 or over, the choice of the indicator of (SES)—wealth, income, or education—is very consequential, as the age trend of social inequalities in health is substantially different for different measures of SES [42].

Concerning intergenerational support, family caregiving was a relevant factor. Overall, on average, women represent 64% of family caregivers. The family caregiver rate was higher for OP60+ with severe BADL limitations across all deciles in both sexes, compared with those with mild BADL limitations. Furthermore, 10% of the OA60+ with at least one BADL limitation provide personal care for household residents, including older adults; 74% were women. In both sexes and both categories of BADLs limitations, the wealthiest two deciles received more family caregivers than the two poorest deciles. The differences were statistically significant ($p < 0.001$). It must notice that OP60+ in both sexes and both categories of BADLs limitations across middle deciles (4th to 7th) received more family care than the two poorest and two wealthiest deciles. This result confirms those reported by Lima-Costa et al. (2016), suggesting that the wealthiest OP60+ are more likely to receive help for performing ADL tasks and that the receipt of formal care is correlated with better socioeconomic conditions. However, the results differ with these authors regarding informal care being only significantly associated with the poorest and not significantly associated with the wealthiest.

An interesting finding is that across inequality indexes, consistently and significantly poorest OP60+ in both sexes shows around two times higher prevalence rate in mild BADLs limitations than the wealthiest. However, in severe BADLs limitations, these differences are not clearly stated, and it depends on the sex and type of BADLs involved. Except for the 10/10 index for sitting down/getting up off a chair, the poorest men show slightly higher differences across the three indexes in all BADLs; however, the differences were mainly statistically significant in the 20/20 and 40/10 indexes. Paradoxically, in women, excepting 40/10 index in dressing BADL and 10/10 and 40/10 indexes in getting in/out of bed, the wealthiest women show a slightly higher prevalence rate in severe BADL limitations than the poorest women. The differences were statistically significant in the three indexes for eating and bathing BADL and the 20/20 index for personal mobility and sitting down/getting up off a chair.

In this analysis, intergenerational care mostly favored the wealthiest deciles across inequality indexes. Consistently and significantly wealthiest women received more family caregiving in both BADLs limitation categories than the poorest women. In the 10/10 inequality index, women with mild limitations received 6 to 20 times—depending on BADL limitation—more family care than the poorest women. In women with severe BADL limitations, the 10/10 inequality index significantly favored 7 to 11 times the wealthiest. Concerning the other indexes, even advantageous for the wealthiest women, the magnitudes are lower. For the men, the wealthiest received more family caregiving in both BADLs categories than the poorest men. However, their magnitude differences were lesser and statistically significant only in the 10/10 and 20/20 indexes. The 40/10 inequality index favored the poorest men with severe BADL limitations, but the differences were not statistically significant.

The study had some limitations that should be considered when interpreting the results. No causal inference can be drawn when interpreting these results since the study relies on cross-sectional data. Second, the interest variables assessed were obtained through interviews based on self-reports or provided by another resident, increasing the risk of information bias. Another limitation is the descriptive design of the study, which would prevent adjusting for relevant variables the magnitude of the differences in functional health by household income level of the older adults. The effect of age, education level, ethnicity, region of residence, etc., could affect the results presented.

Also, this study had some strengths. It includes a nationally representative sample of the older adults Brazilian population. This allowed quantifying the magnitude and association between household incomes, functional health, and intergenerational support among older Brazilians. Another advantage of the study is its internal validity, given that the PNS produced high-quality data, with careful preparation of instruments and quality control of data collection and processing [31].

5. Conclusion

In conclusion, the study's results provide elements to understand how the gradient in household income and the availability of family caregiving for older adults with BADL limitations help explain the effects of the vicious circle of health inequality in Brazil. Inequality indexes reveal significant socioeconomic inequalities in functional health prevalence among the older adult population, and their magnitude varies by sex and BADL limitation severity, affecting women more than men. Additionally, there is clear evidence that family support is fundamental to maintaining older adults' health, quality of life, and well-being. Nevertheless, as current social changes affect the family structure and dynamics, it is crucial to examine community and health system interventions targeting older adults to prevent declining functioning health.

Considering that functional limitations as an indicator for healthy aging were associated with a higher likelihood of retirement and a higher level of health expenditures [43], these findings highlight the need for public policies in the health sector focused on the morbidity compression of the NCDs—main cause of functional limitations—and setting targets for healthy life expectancy during early adulthood, emphasizing healthy aging activities mainly in the vulnerable groups. Achieving that requires reducing inequalities and a health system based on prevention rather than interventions. As successful preventive health policy goes well beyond the health sector, a life course approach and social determinants of health approach must be considered.

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Conflict of interest

The author declares no conflict of interest.

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Chapter 4

Intergenerational Solidarity in the Nordic and Baltic Regions

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Abstract

Intergenerational solidarity in the Baltic states and Nordic countries has gained heightened significance, catalyzed by the COVID-19 pandemic. This research delves into the evolving dynamics of mutual support, care, and respect across generations, emphasizing the role of family values, sociocultural context, and economic factors. Amid global health challenges, intergenerational cooperation emerged as essential, with older individuals' vulnerabilities underscoring the need for assistance and support from younger generations. By analyzing responses from these regions, the study explores functional and economic exchange, while considering cultural values and historical influences. The pandemic's impact on assistance patterns and the interplay between COVID-19 restrictions in Baltic and Nordic countries are examined. Ultimately, this research sheds light on the intricate fabric of intergenerational relationships, offering insights into maintaining societal resilience and cohesion during transformative times.

Keywords: functional support and assistance exchange, financial support, resource transfer, older adults, values, COVID-19

1. Introduction

1.1 Intergenerational solidarity in the Nordic and Baltic regions

Investigating intergenerational solidarity in the Baltic states and Nordic countries is of significant importance as the proportion of the older population in these regions continues to rise. This research offers crucial insights into society's perceptions of older adults, whether viewed as potential burdens due to reduced labor market capacities or as valuable fountains of knowledge and experience. Understanding these perceptions is key to addressing potential social exclusion among the older population and promoting more inclusive viewpoints.

Moreover, within the Nordic systems of care, respect and value for the older generation are foundational. The strong emphasis on respecting the contributions and experiences of older adults is deeply ingrained in these societies, and this cultural value plays a pivotal role in intergenerational relationships. Old age is often linked to weakness and a need for support from family members and society.

Analyzing intergenerational solidarity is essential for fostering respectful relationships across generations and recognizing the strengths and assets of both younger and older individuals. Successful intergenerational solidarity contributes to cohesive societies, emphasizing family values and mutual care, which in turn enhances the well-being of all age groups.

The sociocultural context in the Baltic states and Nordic countries is intricate and plays a pivotal role in shaping intergenerational relationships and family values. By delving into financial factors such as resource availability and family income, policymakers can develop targeted interventions to support families in need. Understanding the impact of political aspects, including social policies and citizens' rights, aids in constructing robust support systems spanning generations.

Furthermore, considering historical events and cultural traditions provides a comprehensive understanding of the unique dynamics within these societies. This facilitates identifying shared values that strengthen family bonds and promote intergenerational solidarity.

The emergence of the COVID-19 pandemic has significantly influenced the functional exchange of assistance and help within the Baltic states and Nordic countries. The impact of COVID-19 restrictions varied between these regions, reflecting differences in their responses to the pandemic. In the Nordic countries, known for their well-established social welfare systems, the pandemic prompted a re-evaluation of their support structures. The importance of intergenerational solidarity was reaffirmed, and efforts were made to ensure that older individuals received the care and assistance they needed while adhering to safety measures.

In the Baltic states, the impact of COVID-19 restrictions shed light on the resilience of family networks. With fewer resources and support mechanisms in place, families relied even more heavily on intergenerational solidarity to navigate the challenges posed by the pandemic. The restrictions underscored the significance of mutual support between generations, highlighting the crucial role of family networks in times of crisis.

In both the Nordic countries and Baltic states, mutual functional and financial exchanges between generations play a significant role in sustaining family networks. The support systems encompass various forms of assistance, including caregiving, financial contributions, and the sharing of practical skills. These exchanges are deeply ingrained in the fabric of society, contributing to cohesive family structures and enhancing the overall well-being of all generations.

In conclusion, exploring intergenerational solidarity, values, understanding, respect, and the sociocultural context in the Baltic states and Nordic countries yields invaluable insights that guide policymakers and researchers towards cultivating inclusive societies. This ensures the well-being and dignity of all age groups while fostering strong family connections that contribute to overall social cohesion and unity within these regions, especially during times of crisis such as the COVID-19 pandemic.

The aim of this study is to investigate the functional and financial assistance/support exchanged across generations, as well as the underlying cultural, historical, and sociopsychological values that shape these interactions among the older populations in the Nordic and Baltic countries. Additionally, the study seeks to explore the

potential impact of the COVID-19 pandemic and related restrictions on intergenerational support systems within these regions. By examining these aspects, the research aims to provide valuable insights into the dynamics of intergenerational relationships and the factors that contribute to the well-being and cohesion of older individuals in the studied countries.

We hypothesize that intergenerational support systems in the Nordic and Baltic countries are influenced by cultural, historical, and sociopsychological factors. We also expect the COVID-19 pandemic to impact these systems differently across countries.

By implementing a multifaceted research methodology that combines diverse datasets and employs statistical analysis including Pearson's chi-square test and binary logistic regression with adjusted odds ratios, we have successfully obtained valuable insights into the intricate dynamics of intergenerational support systems within the Nordic and Baltic countries. These findings shed light on the multifarious influences of cultural, historical, and sociopsychological factors on these systems, as well as the differential impact of the COVID-19 pandemic across these distinct regions.

While the examination of prior research findings has enhanced our understanding of intergenerational solidarity within the Baltic and Nordic regions, it is crucial to acknowledge certain limitations. Notably, constraints pertaining to various confounding factors, such as socioeconomic, cultural, and health-related variables, were beyond our control due to data availability constraints. To mitigate potential bias stemming from these limitations, we have adopted a comprehensive approach, synthesizing information from diverse studies and data sources and incorporating current and pertinent literature.

1.2 Intergenerational solidarity in the family and challenges posed by COVID-19 pandemic

Intergenerational solidarity in the family refers to the mutual support, care, and connection between different generations within the family context. It involves expressing willingness to help each other in various aspects of life, including financial and emotional support, caregiving, and daily assistance [1]. The concept of intergenerational solidarity has gained even greater significance in the context of the COVID-19 pandemic. The unprecedented challenges posed by the pandemic have underscored the importance of mutual support and cooperation between different age groups within families and communities. The global health crisis has brought to light the vulnerabilities faced by older populations, making the exchange of assistance and support among generations more crucial than ever before.

The COVID-19 pandemic has illuminated the essential role that intergenerational solidarity plays in maintaining the well-being and resilience of societies. As communities grappled with lockdowns, social distancing measures, and disruptions to daily life, the interconnectedness between generations became evident. Older individuals, particularly those more susceptible to the virus, required support for their health and safety, while younger generations stepped up to provide essential assistance, such as grocery shopping, medication delivery, and emotional companionship.

In this study, we utilized the latest available data to delve into the dynamics of intergenerational solidarity during the COVID-19 pandemic. By analyzing the responses of individuals from the Nordic and Baltic countries, we aim to shed light on how this crisis has impacted the exchange of functional and financial assistance/support across generations. Additionally, we seek to understand how cultural, historical,

and societal values have shaped these interactions and the extent to which the pandemic has influenced the pre-existing patterns of intergenerational relationships.

By exploring these aspects, we hope to gain insights into the evolving nature of intergenerational solidarity in the face of a global crisis. Ultimately, our research contributes to a better understanding of the role that different generations play in supporting one another and highlights the resilience and adaptability of societies during challenging times.

1.3 Geographical impact and migration

Understanding intergenerational solidarity requires considering the influence of cultural and social contexts. Dykstra and Fokkema [2] introduce a nuanced approach to exploring family relationships, revealing that geographical proximity and strong family norms influence assistance-sharing during, e.g., childbirth, but not necessarily financial support exchange. Moreover, the study emphasizes the importance of considering intergenerational relationship variability in different countries. It also demonstrates that family relationship types can evolve over time and across family members' life paths. For example, another study indicates that Lithuanians with family members living abroad show a slightly lower willingness to support their parents and have a slightly higher concern about future caregiving responsibilities compared to the general population [3]. Additionally, this group displays a slightly weaker agreement regarding the responsibility of adult children to care for their aging parents. Migration experiences appear to influence attitudes towards filial obligations and the readiness of adult children to support their parents. Family ties' structure and geography play a significant role in determining the ability to provide mutual assistance. Both the general population and families with migration experience tend to reside relatively close to each other, which may result in more intense support exchanges in the event of future parental care needs. Regarding intergenerational solidarity types, the analysis reveals a high potential for support among family members, with the detached relationship type being less prevalent. The predominant types of intergenerational solidarity emphasize the maintenance of close ties, both within the general population and among families with migration experience.

In conclusion, studying intergenerational relationships in different countries, including Eastern European nations, can help to better understand the similarities and differences in family solidarity later in life. Embracing diverse perspectives and acknowledging variability is essential in fostering successful intergenerational solidarity in the Nordic and Baltic regions.

2. Discussion of the results

2.1 Dimensions of caregiving in the Baltic states and Nordic countries

To study intergenerational solidarity in the Baltic states, a sample of 10,123 respondents aged 50 years and above was drawn from the Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 9, COVID-19 Survey 2 [4]. The sample included participants from Latvia (962), Estonia (4046), and Lithuania (1251). Additionally, a sample was taken from three Nordic countries: Denmark (1589), Sweden (969), and Finland (1306). The analysis of age distribution revealed noteworthy differences among the countries. All countries in the sample had a higher

proportion of respondents aged 70 years and older, with a significantly higher proportion in Sweden and Estonia (p < 0.001, Cramer's V = 0.125). This suggests that the older population was relatively larger in these two countries.

Furthermore, the study also explored gender distribution in the sample. The Nordic countries (Denmark, Sweden, and Finland) exhibited a slightly larger proportion of male respondents in comparison to the Baltic states (Latvia, Estonia, and Lithuania) (p < 0.001, Cramer's V = 0.076).

The analysis covered aspects related to both the delivery and receipt of personal and home care throughout the COVID-19 outbreak. The results of this analysis are outlined in **Tables 1–3** and **Figures 1–3**. This examination involved the scrutiny of valid responses regarding assistance provided to and received from various groups,

	N	Percent of cases
Own children outside home since outbreak	153	24
Own parents outside home since outbreak	266	42
Other relatives outside home since outbreak	163	26
Neighbors/friends/colleagues outside home since outbreak	156	25

Table 1.
Personal care provided in the Baltic states and Nordic countries across the entire sample during COVID-19 to different recipients.

	N	Percent of cases
Own children to obtain necessities *since* outbreak	2506	83
Own parents to obtain necessities since outbreak	33	1
Other relatives to obtain necessities since outbreak	406	13
Neighbors/friends/colleagues to obtain necessities since outbreak	729	24

Table 2.
Help received to obtain necessities in the Baltic states and Nordic countries across the entire sample during COVID-19 from different caregivers.

	N	Percent of cases
Own children	197	42
Own parents	2	0.4
Other relatives	55	12
Neighbors/friends/colleagues	86	18
Professional care providers	280	59

Table 3.
Regular home care received totally during the last 3 months across the entire sample from different sources.
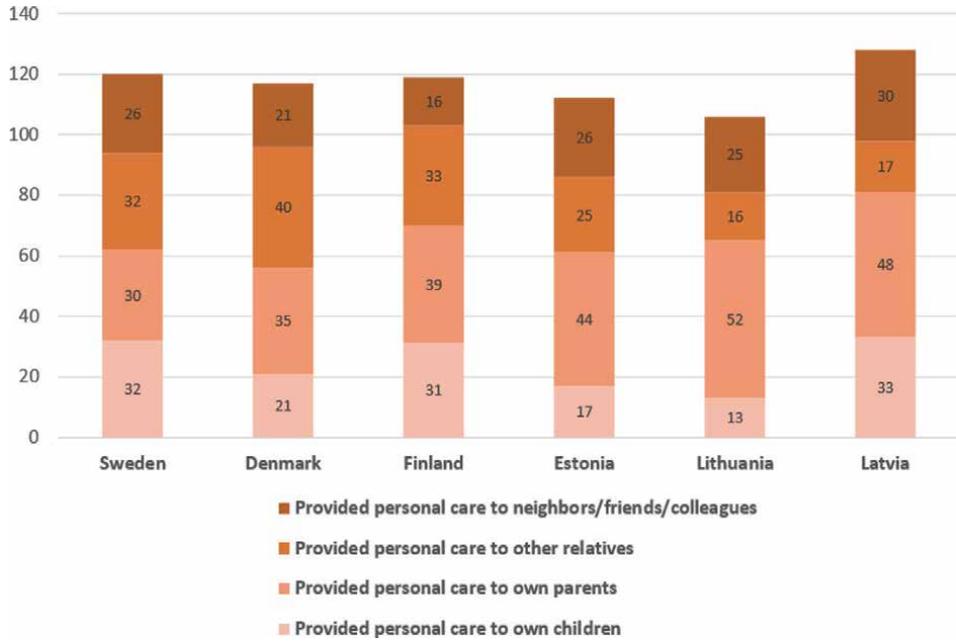
Figure 1.
Personal care provided during COVID-19 (by country) (%).
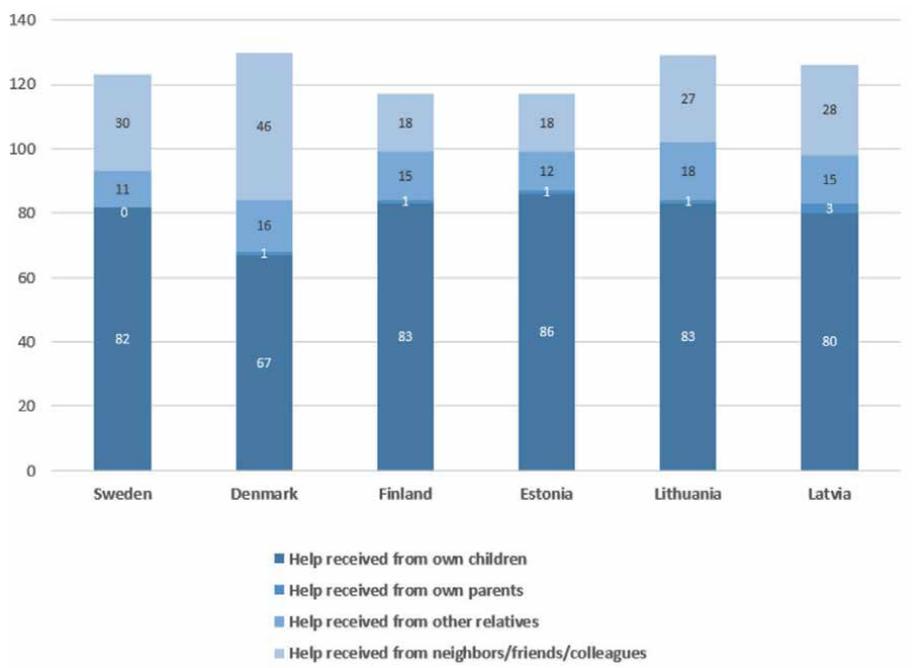
Figure 2.
Help received to obtain necessities during COVID-19 (by country and by source) (%).
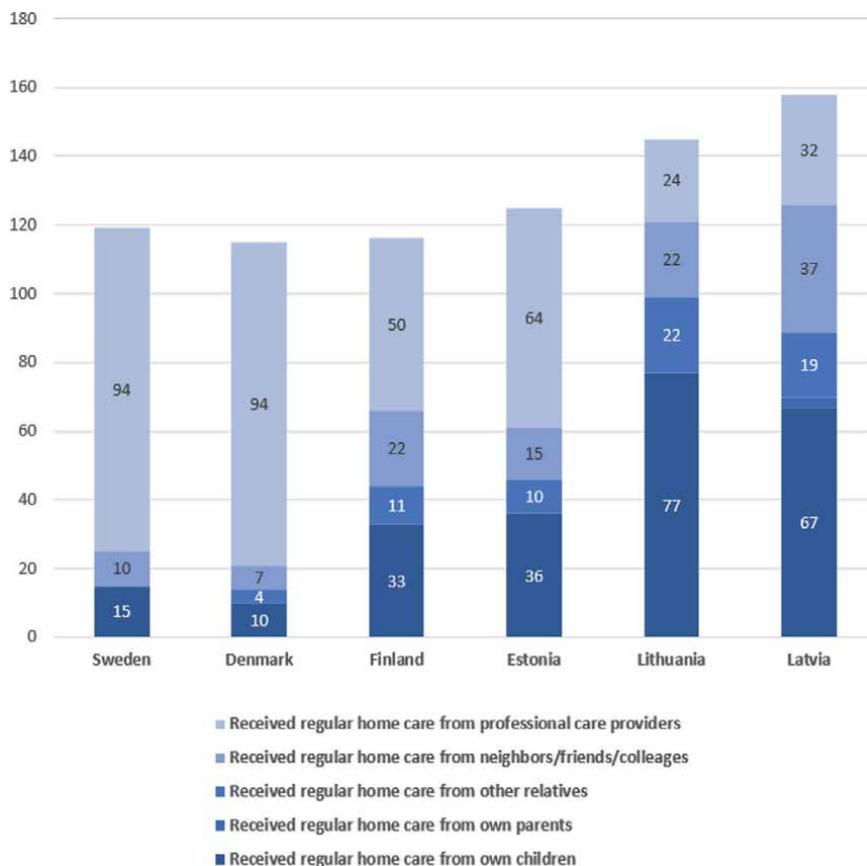
Figure 3.
Regular home care received during the last 3 months (by country and by source) (%).

such as one's own children, parents, other relatives, neighbors, friends, and colleagues outside the household during the COVID-19 outbreak [4]. The total surpasses 100% due to respondents being able to select more than one option.

The provision of personal care during the COVID-19 pandemic was investigated in both the Baltic states and Nordic countries, considering the entire sample. Only 634 valid cases were available. A total of 738 responses were received.

Respondents often reported receiving support from various sources, including their own children, parents, other relatives, neighbors, friends, and colleagues outside the household. The highest proportion of personal care provided outside the home since the outbreak of the pandemic was directed towards one's own parents, with a notable rate of 42%.

Exploring the results among all countries, Nordic countries reported providing care more often to other relatives compared to Baltic states. A smaller proportion of respondents in Estonia and Lithuania reported providing personal care for their own children (**Figure 1**).

This examination involved the scrutiny of 3674 responses regarding assistance provided to various groups during the COVID-19 outbreak. During the COVID-19

pandemic, the exchange of assistance for obtaining necessities in the Baltic states and Nordic countries across the entire sample revealed that the most substantial proportion, at 83%, was from own children. This underscores the significant role that offspring played in providing support for essential needs during this challenging period (**Table 2**). Exploring the results among all countries, Denmark reported less often receiving help from its own children and more often receiving help from neighbors, friends, and colleagues (**Figure 2**).

As we navigate the ongoing challenges of the COVID-19 pandemic, understanding the role of intergenerational solidarity in family support becomes essential for devising effective policies and interventions to promote the well-being and resilience of families across generations. The lessons learned from this period can guide future efforts to enhance family relationships and ensure that intergenerational support remains a pillar of strength in times of crisis and beyond. These findings shed light on the demographic characteristics of the sample and the scope of personal care provided during the pandemic, offering valuable insights into the interplay between age, gender, and support networks in the context of the COVID-19 crisis.

The regular home care received during the last 3 months was assessed from multiple sources, including own children, parents, other relatives, neighbors, friends, and colleagues outside the home. In total, only 474 valid cases of regular home care were available. A total of 620 responses were received, indicating that respondents often received home care from multiple sources.

Exploring the results among all countries, the Baltic states reported more often receiving regular home care from their own children. Sweden, Denmark, and Estonia more often reported receiving regular home care from professional care providers (**Figure 3**).

2.2 Values and attitudes

The European Values Study data from 2022 [5] offers a valuable opportunity to compare the views of residents across European countries, including the Baltic and Nordic regions, regarding aspects of intergenerational solidarity. Specifically, the study explores citizens' perceptions of the individual responsibility of families versus society/the state as a whole in caring for older citizens.

Children's attitudes towards their duty to their parents are influenced by various factors, ranging from the country's level of well-being and the availability of health and social care services to cultural and family traditions and religious beliefs. As well as in some cases, obligations towards the parents and grandparents are stated in the legal regulations.

EVS 2022 data reveals significant differences between the opinions of inhabitants in the Baltic and Nordic countries on this matter, with χ^2 (14, N = 12,470) = 1729.65, and p < 0.001. In the Baltic states, a majority of individuals (over half) believe that adult children have the duty to provide long-term care for their parents. This perspective is most prevalent in Lithuania (65%), likely due to the strong influence of Catholicism on family relationships and traditions. In Latvia, this attitude is somewhat influenced by economic factors, as the older population faces higher at-risk-of-poverty rates compared to Lithuania, Estonia, and the EU average [6]. In addition, in the Baltic states, the legal framework also stipulates the obligation of children to support their parents and grandparents, of course, as well as specifying cases of exception. For example, the Civil Law of the Republic of Latvia, Section 188

states that the duty to maintain parents and, in cases of necessity, also grandparents, lies upon all of the children commensurately to their abilities [7].

Also, the Civil Code of the Republic of Lithuania, Section 3.205 states, that adult children shall be obliged to [maintain –> provide financial assistance to] their parents who have lost earning capacity and need support [8]. Obligations stated in the legal framework as well as local court cases have impact on the understanding and opinions of population.

In stark contrast, the Nordic countries present a completely different picture. Only a minority of the population in these countries believe that adult children should be responsible for long-term care for their parents, with the lowest support found in Finland (21%) and Denmark (25%) (**Figure 4**).

These findings highlight the significant variations in intergenerational solidarity perspectives between the Baltic and Nordic regions, shaped by a combination of cultural, economic, and societal factors. Understanding these differences is crucial for developing appropriate policies and support systems for providing care for older adults in each country.

In the Baltic and Nordic regions, where the proportion of older people is increasing, strong intergenerational relationships and support systems within families can have a positive impact on the health and longevity of older individuals. When adult children are actively involved in caring for their parents and providing emotional and financial support, it can lead to better physical and mental health outcomes for older parents. The availability of family support can alleviate the burden on formal healthcare systems and long-term care facilities, ensuring that older individuals receive the care they need. From 2006 to 2016, the percentage of older people who provided financial assistance to the younger generation went from 62% to 73% in Iceland [9], and the share of the family in providing support to older relatives also increased between the 2016 and 2020 surveys during the pandemic [10].

In a study conducted by Silverstein and Bengtson [11], a positive correlation was found between close parent-child relationships and the reduced risk of death for older parents. The research supported the notion that family values and traditions play a significant role in fostering supportive intergenerational relationships. These values
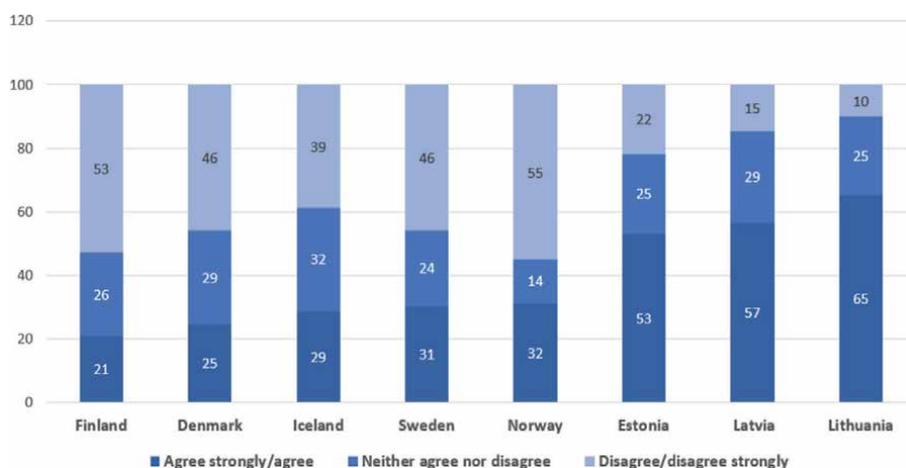

Figure 4.
Adult children have the duty to provide long-term care for their parents (%). Source: The authors, based on EVS survey data, wave 5, (n = 12,470).

and traditions encompass respect for older generations, providing assistance and support to parents, actively involving them in family life, and caring for them in their old age. As a result, stronger intergenerational ties, stemming from family values and traditions, can contribute to a lower risk of death for older parents. This study underscores the importance of preserving and passing on family values and traditions to promote the well-being and longevity of parents.

However, the effectiveness of family support in promoting longevity is also influenced by the broader context in the Nordic and Baltic countries, e.g., healthcare and long-term care provision. The healthcare systems play a crucial role in providing medical services and long-term care for older people, particularly those with chronic health conditions and age-related dependencies.

Family values and traditions alone may not be sufficient to address the complex health needs of older individuals. Adequate and accessible healthcare services are essential to support older people in maintaining their health and well-being. A well-functioning healthcare system can complement family support and ensure that older individuals receive timely medical interventions, preventive care, and long-term support, contributing to their overall longevity.

In summary, family values and intergenerational solidarity are vital factors influencing the longevity of older people in the Nordic and Baltic countries. These values foster supportive family relationships, which, when combined with well-developed healthcare systems providing long-term care, contribute to better health outcomes and prolonged lives for older individuals. The interplay between family support and formal healthcare services is crucial in promoting the well-being and longevity of the aging population in these regions.

When examining the overall attitude of Baltic and Nordic societies towards the older generation, a significant difference emerges based on the European Values Study data [5]. The responses to the question "To what extent do you feel concerned about the living conditions of older people living in your country?" reveal contrasting perspectives between the two regions.

In the Baltic states as a whole, the population demonstrates much less concern for the living conditions of persons 65 years and older compared to the Nordic countries. Estonia exhibits the lowest rates of concern, with only 48% of the population expressing significant concern for the conditions of older people. On the other hand, in Denmark, the majority of the population (81%) is deeply concerned about the living conditions of older individuals, followed closely by Norway (78%) and Sweden (77%).

The empirical findings reveal a strong inclination towards supporting older parents among the Lithuanian population. This support is driven by robust filial norms, a high willingness to assist parents, and a low level of concern about future caregiving needs for older parents. The population widely adheres to the social norm of considering the care of older parents as the responsibility of adult children, regardless of individual or family characteristics.

Gendered patterns are evident in intergenerational solidarity and expectations of support from personal networks. Women within personal networks are perceived as having a greater potential to assist with care for older adults, particularly when they share family ties with the individuals involved. Overall, the research underscores the significance of filial norms and family dynamics in shaping support for older parents in Lithuania (**Figure 5**) [3].

The discrepancy in attitudes towards the older population is reflected in the societal and state treatment of older individuals in the Baltic states since gaining independence. The prevailing sentiment can be described as covertly dismissive or
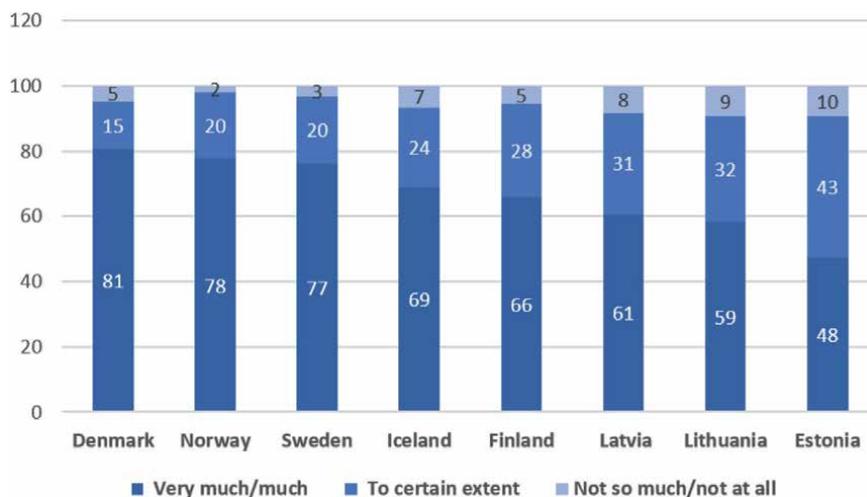
Figure 5.
The extent to which one feels concerned about the living conditions of older people in their country (%). Source: The authors, based on EVS survey data, wave 5, (n = 12,518).

even neglectful. This attitude is evident in several aspects, such as meager pensions, discriminatory behavior from medical and care workers, inadequate infrastructure for older adults, and a preference for hiring younger individuals in the labor market. The Baltic states also experience higher rates of age discrimination compared to the EU average. Among the Baltic countries, age discrimination rates vary, with Lithuania reporting the highest indicator at 45% of respondents recognizing age discrimination, followed by Latvia at 40%. Estonia, on the other hand, demonstrates the lowest prevalence of age discrimination among the Baltic states, with 35% of people reporting it as a widespread form of discrimination [12].

Eurobarometer data reveals that age discrimination is not limited to the Baltic countries alone. Interestingly, even in the Nordic countries, where the concern for the living conditions of the older population is comparatively higher, age discrimination is still recognized as a widespread phenomenon by a considerable portion of the population. In Sweden, 42% of the population recognizes age discrimination as a widespread issue, while in Finland, 37% share this sentiment. Age discrimination rates are comparatively lower in Denmark, where only 25% of the population recognizes age discrimination as a widespread phenomenon.

Exactly, the findings indicating age discrimination as a concern in both the Baltic and Nordic countries underscore the significance of addressing ageism on a broader societal level. Combating age discrimination and promoting inclusive attitudes towards older individuals should be a shared priority for these regions.

To ensure the well-being and dignity of their aging populations, societies in the Baltic and Nordic countries need to take proactive measures to eliminate age discrimination and promote respectful treatment of older individuals. This includes implementing policies that protect the rights of older people, creating age-friendly environments that support active aging, and fostering intergenerational solidarity to bridge the gap between different age groups. Additionally, addressing living conditions and providing better care for older persons should also be given significant attention. This involves improving the availability and quality of healthcare and long-term care services for older individuals, as well as enhancing social support systems to meet their needs.

By collectively working towards combating ageism and creating a more inclusive society, the Baltic and Nordic countries can ensure that their aging populations are valued, respected, and able to live with dignity and well-being. These efforts will contribute to a more harmonious and supportive society, benefiting people of all age groups.

2.3 The role of intergenerational solidarity in family relations

The study by Albertini et al. [13] provides valuable insights into the intergenerational resource transfer patterns in Western European countries, using data from the SHARE survey conducted in 2004. Their research highlights a common pattern of intergenerational resource transfer, where parents tend to pass on resources to their children more often and more intensively than vice versa. This positive balance in favor of transferring resources to younger generations remains evident even among individuals over 70 years of age, although it decreases with age.

The nature of resource transfer varies depending on the type of social regime in each country. Southern European countries exhibit less frequent but more intensive transfers of resources, while the Nordic countries demonstrate more frequent but less intensive transfers.

These findings emphasize the importance of considering intergenerational resource transfer in policies and research related to aging and family support. Understanding the dynamics of resource transfer between generations is crucial for formulating effective social policies and support systems that can address the needs of different age groups within families.

By recognizing the patterns of intergenerational resource transfer, policymakers can design targeted interventions to promote more equitable and supportive family relationships. Additionally, these insights can help in creating sustainable welfare systems that facilitate mutual support between generations and ensure the well-being of both older and younger family members.

In conclusion, the study [10] sheds light on the significance of intergenerational resource transfer in Western European countries and highlights the need for policies that acknowledge and support these dynamics to foster stronger and more resilient family ties across generations.

2.4 Economic conditions

Economic conditions and the impact of socioeconomic status on the use of care among older adults in different countries [14]. This paper examines the relationship between socioeconomic status and the use of different types of care provided for older people in Belgium, the United Kingdom, Italy and the Netherlands, and examines sociodemographic and health outcomes related factors influencing this relationship. The authors of the study draw the following conclusions on the basis of this article: people with low socioeconomic status seek more help, both formal and informal, but it varies by type of assistance and country. Factors such as age (75 years and older), health status and marital status (unmarried or widowed) explain some of the differences in the use of formal assistance in all countries and informal care in all countries except Belgium. This is because sociodemographic characteristics and health status may play a role in determining the need for care. The likelihood of using informal assistance is related to the availability of family members who are willing and able to help, as well as the availability of available funds and resources. This may depend on relationships within the family and the availability of relatives for assistance. Socioeconomic disparities in the use

of formal aid remained significant even after accounting for the factors explaining the use of informal assistance. This indicates that differences between countries in the use of formal assistance are not entirely due to socioeconomic status or other characteristics of the population but may be related to the characteristics of the social security system and the level of access to relevant services. All four countries have different social security models that can influence the availability and use of formal assistance. Each country may face unique social and economic challenges that require unique approaches to the organization of the support system for older citizens. Thus, the study highlights the importance of considering socioeconomic and cultural differences in providing care to older persons. The diversity of approaches to care depending on the country and socioeconomic status highlights the need to develop individualized and adapted support programs that consider the specificities of each country and ensure equal access to social services for all citizens. The policy, as expressed in legislation and other policy documents, ensures access of older adults to the appropriate level of health and social care services [15].

Nekehia et al. [16] investigated the links between socioeconomic status and the provision of informal care within the family. The authors of the article also found that people with low levels of education, income and wealth are more likely to provide informal care to older members of their families. The researchers also drew attention to the impact of macro-level factors, such as income inequality and social spending of the country, on the provision of informal care. It turned out that the high level of income inequality in the country is positively associated with the provision of care, while more generous social spending carried out by the state was associated with a lower likelihood of providing care to older adults within the family. This analysis makes it clear that socioeconomically vulnerable groups are more likely to become informal caregivers, which can exacerbate socioeconomic caregivers' economic inequalities in society. At the same time, government measures to reduce income inequality and increase social spending can help reduce the intensity of family care and ease the burden on caregivers.

Using multi-level regression models, the study provided evidence-based conclusions about the relationship between socioeconomic factors and informal care provision in the family. Such analyses are important for identifying target groups in need of special support and developing national strategies to assist family caregivers [13].

Biggs et al. [17] conducted a study to investigate a new model of intergenerational relationships based on the possibility of placing oneself in the position of a person of a different age, or an "age other" [17]. In the chapter, the authors consider an experimental approach that combines sociological thinking about "generational consciousness" with a discussion in gerontology about the relationship between conflict, solidarity, and ambiguity. The focus is on the processes of age-related experience, and a distinction is made between information "intelligence", which is culturally accessible to social actors, and the degree of ability to "act intellectually". The latter involves steps to be taken in order to become critically self-aware of age as a factor in social relations, including the relative ability to recognize one's personal age uniqueness, an understanding of the intergenerational relationship, a critical awareness of the point of view taken behind age-related positions, and, finally, acting in accordance with age consciousness. The study found that lower socioeconomic resources—education, income, and wealth—are associated with a higher likelihood of providing informal care to older family members. At the macro level, income inequality was positively associated with the provision of informal care, while social spending was negatively associated with it. The findings indicate that socially disadvantaged groups are more likely to provide informal care, which can exacerbate socioeconomic inequalities. At the national level, a more equitable distribution of resources and social spending can

reduce intensive family care for older adults. The authors propose to consider the possibilities of supporting sustainable intergenerational relationships and pay attention to subsequent research in this area.

The study conducted by Albertini et al. [13] offers valuable insights into intergenerational resource transfer patterns in Western European countries based on the 2004 SHARE survey data. The research reveals a common trend where parents tend to pass on resources to their children more frequently and intensely than the other way around. This positive balance of resource transfer to younger generations remains evident even among individuals over 70 years of age, though it diminishes with age.

The nature of resource transfer varies based on the social regime of each country. Southern European countries show less frequent but more intensive transfers, while the Nordic countries demonstrate more frequent but less intensive transfers.

These findings underscore the importance of considering intergenerational resource transfer in aging-related policies and family support research. Understanding the dynamics of resource transfer between generations is crucial for designing effective social policies and support systems that cater to the needs of different age groups within families [11, 12].

By acknowledging the patterns of intergenerational resource transfer, policymakers can create targeted interventions to promote equitable and supportive family relationships. Additionally, these insights can aid in developing sustainable welfare systems that facilitate mutual support between generations and ensure the well-being of both older and younger family members.

In conclusion, Albertini, Kohli, and Vogel's study sheds light on the significance of intergenerational resource transfer in Western European countries and emphasizes the necessity of policies that recognize and support these dynamics to foster stronger and more resilient family ties across generations.

Sociologist Marc Szydlik's research focuses on the connections and interactions between different generations in family relationships and their impact on social stratification [18]. The study examines five types of connections, including those within the family throughout life, between the family and the state, and between generations and social stratification. Szydlik's [18] work also explores the links between individual needs and capabilities, family relationships, and cultural-contextual structures, while discussing the importance of combining theoretical considerations with empirical research using examples of assistance, care, and inheritance.

The findings confirm the presence of stable intergenerational ties in families, evident through financial transfers and social support. The research highlights the significant impact of family solidarity on social inequality throughout individuals' lives, as well as the relationship between social security regimes and the operation of intergenerational solidarity.

Szydlik [18] proposes a theoretical model that elucidates the connections between individual needs and opportunities, family relationships, and cultural-contextual structures. Moreover, the study underscores the importance of integrating theoretical considerations with empirical research in understanding assistance, care, and inheritance.

Overall, the research underscores the role of intergenerational solidarity in family relationships and its influence on social stratification. It emphasizes the need to consider these linkages in developing social policies and supporting family relationships.

The study of Kraniauskienė [19] distinguishes between functional solidarity and normative solidarity in the context of family support exchanges. Functional solidarity refers to the actual organization of mutual assistance and support among different generations within a family. Normative solidarity, on the other hand, explores

attitudes towards familism or defamilism and how these influence the reciprocation of support between adult children and their parents, as well as expectations regarding the role of the state in supporting families.

The empirical data from the Generation and Gender Program survey indicate that Lithuania has a supportive familism attitude, emphasizing the distribution of various types of support between the family and the state [19].

Expectations regarding support vary among different age groups. Familism is evident in the society's normative orientation towards supporting the youngest generation, particularly in terms of after-school care for preschool and school children. However, financial support for persons 65 years and older is expected to be shared with society or the state.

Regarding functional solidarity, emotional support from parents plays a significant role during key stages of role transformation in life development. Parental emotional support becomes more relevant and important in maintaining the emotional well-being of adult children during these periods. As parents age, the emotional bond with their children and the support they receive from them become more crucial, fostering close emotional relationships.

In terms of material support, parents are more likely to support their children, with parents aged 45–64 being the most active in providing this support. Overall, the study suggests that norms of familism in Lithuania primarily focus on caring for the youngest members of society. Childcare is predominantly supported within the family, with less reliance on state services. However, when it comes to caring for older or disabled parents, there is a clear preference for supported familialism [19].

The Survey of Health, Ageing, and Retirement (SHARE) that is conducted among respondents aged 50+ in 28 European countries includes questions about giving and receiving financial gifts of €250 or more and providing or receiving help from family members or others outside the household in the preceding 12 months. In wave 8 of the survey (October 2019 to March 2020), the widest coverage was achieved, with a total of 27 countries participating, including all three Baltic states and three Nordic countries (Sweden, Denmark, and Finland) [4].

The majority of respondents neither gave nor received any financial gifts, and there were more donors than recipients. The proportion of recipients varied from 2.5% in France to 12.7% in Estonia and Israel, with an average of 7.1% across all participants. The proportion of donors ranged from 7.4% in Latvia to 42.0% in Denmark, with an average of 26.4%.

Interestingly, the share of donators in Nordic countries was considerably higher compared to most other countries: Sweden (33.9%), Finland (38.8%), and Denmark (42.0%). On the other hand, the shares of donors in the Baltic countries were among the lowest: Estonia (20.7%), Lithuania (16.4%), and Latvia (7.4%).

The proportions of respondents who gave and received non-financial assistance were higher, but the majority still answered negatively to both questions. Although there were more donors than recipients, the difference in proportions was not that large, with an average of 25.5% giving help and 22.5% receiving help from non-household members.

Notably, participants from Nordic countries were more active in providing help to their relatives and friends than any other region, with Denmark having the highest proportion at 50.9%. On the contrary, similarly to financial gifts, Baltic states had the lowest proportions: Estonia at 18.7%, Lithuania at 12.5%, and Latvia at 10.4%.

In terms of receiving help from others, the highest proportion was observed in Czechia at 37.7%, while Malta had the lowest at 9.1%. Among the Nordic countries,

Sweden had the highest proportion at 32.5%, while Latvia and Lithuania were below average at 16.0% and 15.8% respectively. Estonia showed a relatively high rate of 29.6%.

It could be argued that lower participation in giving financial gifts in the Baltic states compared to the Nordic countries may be attributed to the lower incomes of the Baltic population. The fixed threshold of €250 for financial gifts across all countries might result in Baltic respondents giving gifts at similar frequencies but in smaller amounts. However, less frequent participation in practical help transactions puts this argument under doubt.

To analyze whether sociodemographic factors influence the likelihood of giving help and financial gifts similarly in both regions, stratified multivariable binary logistic regression models were used. Factors such as person's sex, age, living single or in couple, having children, and household's financial situation were considered. The models were statistically significant (all having p < 0.001), but the Nagelkerke R^2 statistics indicated that they explained only a moderate amount of the outcome.

Despite the limited explanatory power, the models yielded interesting conclusions. The strong reciprocity between receiving and giving support, both tangible and intangible, was evident in the analysis [20, 21]. Overall, the findings shed light on the complex dynamics of intergenerational support in the Nordic and Baltic regions (**Tables 4** and **5**).

	Receive financial gifts		Receive practical help	
	Baltic (n = 3533)	**Nordic (n = 3429)**	**Baltic (n = 3537)**	**Nordic (n = 3430)**
Gender (W/M)	**1.88 (1.39–2.54)**	**1.54 (1.17–2.04)**	**1.34 (1.11–1.62)**	**1.29 (1.10–1.51)**
Single/couple	**1.29 (1.01–1.65)**	0.99 (0.75–1.33)	**1.69 (1.42–2.01)**	**2.72 (2.13–3.20)**
Has child(ren) (yes/no)	**2.54 (1.47–4.38)**	1.42 (0.82–2.45)	1.14 (0.88–1.48)	**1.50 (1.14–1.98)**
Able to make ends meet:				
• With great difficulty	1	1	1	1
• With some difficulty	0.86 (0.60–1.23)	1.01 (0.46–2.21)	0.90 (0.71–1.14)	0.76 (0.48–1.22)
• Fairly easy	0.82 (0.57–1.19)	0.82 (0.39–1.74)	0.91 (0.71–1.16)	0.78 (0.50–1.21)
• Easily	0.82 (0.53–1.24)	0.53 (0.25–1.11)	0.87 (0.65–1.18)	0.81 (0.52–1.25)
Age group:				
• 50–64 years	1	1	1	1
• 65–69 years	**1.62 (1.16–2.27)**	**0.45 (0.31–0.65)**	0.94 (0.71–1.24)	0.79 (0.62–1.01)
• 70+ years	1.16 (.89–1.53)	**0.35 (0.26–0.48)**	**2.13 (1.75–2.60)**	**1.23 (1.01–1.49)**
Given gifts (yes/no)	**4.60 (3.61–5.86)**	**1.80 (1.36–2.37)**	1.07 (0.86–1.32)	0.99 (0.84–1.17)
Given help (yes/no)	**1.91 (1.47–2.48)**	**2.48 (1.84–3.33)**	**1.74 (1.42–2.14)**	**1.25 (1.06–1.46)**
Nagelkerke R^2	0.131	0.113	0.076	0.093

The statistically significant covariates are shown in bold font (p < 0.05).

Table 4.
Modeling receiving of help (multiple logistic regression, adjusted odds ratios).

	Giving financial gifts		Giving practical help	
	Baltic (n = 3535)	Nordic (n = 3429)	Baltic (n = 3534)	Nordic (n = 3437)
Gender (W/M)	1.09 (0.87–1.36)	**0.76 (0.65–0.88)**	**0.80 (0.65–0.98)**	**0.78 (0.68–0.90)**
Single/couple	**0.57 (0.47–0.70)**	**0.71 (0.61–0.83)**	0.94 (0.77–1.14)	0.89 (0.76–1.04)
Has child(ren) (yes/no)	**1.62 (1.08–2.44)**	**2.57 (1.91–3.47)**	1.22 (0.86–1.74)	**1.33 (1.03–1.72)**
Able to make ends meet:				
• With great difficulty	1	1	1	1
• With some difficulty	**1.77 (1.18–2.66)**	0.81 (0.48–1.39)	0.85 (0.62–1.16)	0.80 (0.50–1.28)
• Fairly easy	**3.51 (2.36–5.22)**	1.36 (0.83–2.24)	**1.47 (1.09–1.99)**	0.99 (0.64–1.54)
• Easily	**7.45 (4.90–11.31)**	**2.50 (1.54–4.07)**	**1.85 (1.32–2.61)**	1.18 (0.76–1.82)
Age group:				
• 50–64 years	1	1	1	1
• 65–69 years	0.86 (0.64–1.15)	0.85 (0.68–1.06)	**0.65 (0.49–0.85)**	**0.60 (0.48–0.75)**
• 70+ years	0.84 (0.67–1.04)	**0.67 (0.56–0.81)**	**0.41 (0.33–0.50)**	**0.28 (0.23–0.33)**
Received gifts (yes/no)	**4.88 (3.84–6.21)**	**1.97 (1.49–2.59)**	**2.15 (1.67–2.76)**	**2.63 (1.96–3.54)**
Received help (yes/no)	1.04 (0.84–1.29)	0.97 (0.85–1.17)	**1.67 (1.36–2.05)**	**1.23 (1.05–1.44)**
Nagelkerke R^2	0.183	0.111	0.084	0.128

The statistically significant covariates are shown in bold (p < 0.05).

Table 5.
Modeling giving help to others (multiple logistic regression, adjusted odds ratios).

In both the Nordic and Baltic regions, women have statistically significantly higher chances of receiving both financial and practical help compared to men, with the effect size being slightly more pronounced in the Baltic states. Single respondents receive more practical help in both regions, with a stronger effect in the Nordic countries. However, for receiving financial gifts, this factor only plays a role in the Baltic states, not in the Nordic countries.

Interestingly, having child(ren) positively contributes to receiving financial gifts in the Baltic states, but it is not statistically significant in the Nordic countries. On the contrary, having child(ren) significantly increases the odds of receiving practical help in the Nordic countries but not in the Baltic ones.

Surprisingly, the households' financial situation does not have any statistically significant association with the likelihood of receiving financial and practical help in both studied regions, while we were expecting more needy households to receive more help.

Age, on the other hand, shows opposite tendencies between the two regions. In the Baltic states, the likelihood of receiving financial gifts is higher for people of pension age compared to working-age respondents. In contrast, in the Nordic countries, the chances of receiving gifts considerably decrease with age. Regarding practical help,

the trends are unidirectional: no difference in the early pension period, but higher odds in the age group 70+, especially among Baltic respondents.

Reciprocity plays a significant role in both regions, especially for receiving financial gifts, with a stronger effect size in the Baltic states. These findings highlight the complex dynamics of intergenerational support in the Nordic and Baltic regions and the role of various sociodemographic factors in shaping the patterns of help and assistance between generations.

In both the Nordic and Baltic regions, women have a statistically significantly higher likelihood of receiving both financial and practical help compared to men, with the effect size being slightly more pronounced in the Baltic states. Single respondents are more likely to receive practical help in both regions, with a stronger effect in the Nordic countries. However, for receiving financial gifts, this factor plays a role only in the Baltic states, not in the Nordic countries.

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Surprisingly, the households' financial situation does not have any statistically significant association with the likelihood of receiving financial and practical help in both studied regions.

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Reciprocity plays a significant role in both regions, especially for receiving financial gifts, with a stronger effect size in the Baltic states. These findings highlight the complex dynamics of intergenerational support in the Nordic and Baltic regions, and the role of various sociodemographic factors in shaping the patterns of help and assistance between generations.

Carmichael and Charles [22] compare men and women engaged in caring for dependents at working age and analyze the impact of informal care on their employment and income. The study shows that caregivers are often women who care for more hours and are more likely to be primary caregivers than men. However, more than 10% of men are also caregivers and more than a third of them are the sole primary caregivers for certain addicts. A recent study using a sample from the Survey of Health, Ageing and Retirement (SHARE) Wave 8 database of more than 12 thousand retirees who, at the moment of data collection, were 65 years and older [23] found that there are differences between male and female respondents in predictors of well-being. For males, the longer durations spent with children predicted higher levels of well-being, while for females, this variable was not significant. Unfortunately, the data provided did not reveal any characteristics of the type of activities the respondents engaged in. But based on well-known gender roles that are still very prevalent, it can be assumed that females are more likely to be providing support, care or education during the time spent together with children, while males aged 65 and older are more likely to engage in games, crafts or other practical activities, for example, woodwork, fishing. This difference in the quality and type of activities during the time with children may be the main reason why it is more important for male well-being, since their time together could be described as leisure but has no significant effect on female well-being. "Promoting more diverse and

equal participation in activities can enhance the well-being of older adults. The study conducted by Kraniauskienė and Gedvilaitė-Kordušienė [24] analyzed data from the "Gender and Generations" survey in Lithuania, focusing on grandchild care provided by grandparents and its impact on their well-being. The findings revealed that grandparents aged 50–65 were the most active in providing childcare, and about half of them also had jobs. Factors like gender, marital status, subjective health, and living arrangements with grandchildren were important predictors of grandparent involvement in childcare. Lithuania was identified as a country with a relatively high level of support from family networks in terms of grandchild care, possibly due to cultural expectations and limitations in the childcare system. Traditional gender roles were evident, with women being more likely to provide care for grandchildren than men. The study also highlighted that men tended to care for grandchildren from their current partnership, while women cared for both grandchildren from current and past relationships, especially daughters. While older adults' well-being was influenced by various factors like gender, age, and employment status, the provision of care had a mixed impact. Working men who cared for grandchildren reported lower emotional well-being compared to retired men doing the same. On the other hand, women carers had worse objective relationship-related well-being compared to their male counterparts but better than non-carers. This discrepancy is attributed to differences in marital status and the unequal division of household responsibilities between spouses. The combination of multiple roles, including paid work and grandchild care, appeared to create some conflict and was associated with lower levels of well-being in certain aspects.

Goldscheider et al. [25] discuss major changes in family behavior in industrialized countries, known as the "second demographic transition." The authors draw attention to the retreat from marriage, the increasing number of adults interrupting, delaying, or avoiding official relationships, as well as the separation of childbearing and upbringing from marriage, with an increasing number of children born out of wedlock. They argue that these changes are related to the increase in women's participation in the labor market. The study also indicates that there are various changes in the relationship between genders and the formation, growth, and dissolution of families. The authors note that there has recently been evidence of a weakening or even reversal of gender ties in relation to fertility. While previously prevailing theories have explained demographic trends, often excluding gender, this study offers a more influential theoretical approach linking fertility conversion to increased government support for families, which reduces work-family conflict for active parents. However, according to the authors, these changes are related not only to government policies but also to changes in gender relations within the family. They see the increasing participation of men in the domestic sphere of the family as the second part of the gender revolution, which strengthens family relationships.

While a review of existing research findings provides deeper insight into intergenerational solidarity in the Baltic and Nordic regions, it is crucial to acknowledge the limitations in drawing definitive inferences from this body of research. These limitations stem from the numerous socioeconomic, cultural, and even health differences that must be considered when making comparisons between the two regions or when suggesting policy development.

Attempting to encompass all of these major and minor differences would lead to conclusions that are overly complex and nuanced, potentially making them overwhelming and impractical. It is important to recognize that, despite being based on available empirical evidence, some of the conclusions or policy recommendations may have limited applicability within specific regions or populations due to subtle distinctions that exist.

However, the intricacies of cross-cultural comparisons and the acknowledgement of these possible limitations should not deter further research and investigation into intergenerational solidarity across various regions. Instead, they underscore the need for continued exploration and a nuanced approach to understanding and addressing the complexities of intergenerational relationships.

3. Conclusions and policy recommendations

3.1 Conclusions and recommendations in the social policy field

3.1.1 Promoting intergenerational solidarity, understanding and respect

Implement initiatives to foster better understanding and respect between different generations. Develop educational programs that promote positive intergenerational interactions, challenging ageist stereotypes and highlighting the value of older individuals' knowledge and experience.

3.1.2 Strengthening family support systems

Invest in social policies and support systems that encourage intergenerational solidarity within families. This could include providing resources and services that facilitate family care and assistance for older family members, recognizing the contributions of older individuals in family settings.

3.1.3 Emphasizing family relationships

Acknowledge the importance of strong family ties and mutual care within families. Encourage family members to provide help and assistance to each other, recognizing the significant impact of intergenerational support on overall well-being.

3.1.4 Enhancing family values and traditions

Support initiatives that preserve and transmit family values and traditions in both regions. These values can foster closer and more supportive intergenerational relationships, contributing to the well-being and longevity of parents and older family members.

3.1.5 Addressing sociodemographic factors

Acknowledge the influence of sociodemographic factors on intergenerational support and care. Develop policies that consider gender, age, marital status, and household income when designing support systems and assistance programs for older individuals.

3.1.6 Targeted support for caregivers

Provide targeted support for caregivers, particularly those engaged in informal care for dependents. Offer financial assistance, friendly working conditions, and access to recreational opportunities to help caregivers balance their caring responsibilities with employment.

3.1.7 Addressing age discrimination

Develop awareness campaigns and programs aimed at combating age discrimination in both Nordic and Baltic countries. Promote inclusive attitudes towards older individuals, emphasizing their contributions to society and the importance of treating them with respect and dignity.

3.1.8 Strengthening social safety nets

Strengthen social safety nets to ensure adequate support for older individuals in need. This includes providing financial aid, healthcare, and long-term care services for older people, with a focus on meeting the diverse needs of older populations in both regions.

3.1.9 Embracing the second demographic transition

Embrace the changes in family behavior and gender roles associated with the "second demographic transition" in both Nordic and Baltic countries. Develop policies that support work-family balance and encourage men's increased involvement in domestic responsibilities, promoting stronger family relationships.

3.2 Understanding resource transfer patterns

Continue research and analysis on intergenerational resource transfer patterns in Western European countries, as shown in the Albertini et al. [13] study. Utilize this knowledge to inform policies and interventions that promote equitable resource transfers between generations, addressing the needs of both older and younger family members.

3.3 Proposals for the dissemination of best practices and their adaptation to the local conditions

3.3.1 Embracing regional best practices

Adapting and transferring intergenerational solidarity strategies. In the pursuit of enhancing intergenerational solidarity, Nordic and Baltic countries can benefit from embracing the regional aspect by drawing inspiration from successful initiatives in neighboring countries while tailoring them to their unique cultural and economic contexts. This approach acknowledges the interconnectedness of these regions and the potential for cross-country learning to drive positive change.

3.3.2 Transferring best practices

There are several countries within the Nordic and Baltic regions that have implemented effective strategies to strengthen intergenerational bonds and promote the well-being of older individuals. For instance, a country might have launched educational programs encouraging positive interactions between generations or established supportive policies for family caregivers. These initiatives have the potential to offer valuable insights and proven methods that can be adapted to the local setting.

3.3.3 Adjusting to local context

While transferring best practices, it is crucial to recognize that each country has its own unique cultural, historical, and economic characteristics that shape the dynamics of intergenerational relationships. Therefore, the imported practices should be adjusted to ensure they align with local values and societal norms. Cultural sensitivity is essential to ensure that the strategies resonate with the population and foster genuine connections.

3.3.4 Tailoring cultural aspects

Different countries may have distinct family structures, traditions, and values that influence intergenerational dynamics. Strategies that have successfully encouraged mutual support and respect in one context might require customization to align with the cultural nuances of another. By understanding and integrating these aspects, countries can effectively promote intergenerational solidarity in a way that feels authentic and meaningful to their citizens.

3.3.5 Considering economic realities

Economic factors also play a significant role in shaping intergenerational relationships. Strategies that involve financial support or assistance may need to consider the economic conditions and challenges specific to each country. Tailoring these strategies to address local economic contexts ensures that they are realistic and achievable, maximizing their impact on both older and younger generations.

3.3.6 Collaboration and knowledge sharing

Implementing successful strategies from neighboring countries involves collaboration and knowledge sharing. Governments, organizations, and researchers can engage in dialog and exchange insights to identify approaches that have proven effective elsewhere. Regional partnerships can facilitate the exchange of ideas and resources.

These policy recommendations aim to promote intergenerational solidarity, address age discrimination, and support family values and relationships in both the Nordic and Baltic regions. By implementing targeted policies and interventions, these countries can enhance the well-being and quality of life of their aging populations while fostering positive family dynamics and social cohesion.

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Interactions between the Oldest and the Youngest Age Groups in the Current Multigenerational Organizations: The Case of Slovakia

Monika Šestáková

Abstract

The present chapter analyzes the interactions and outlines a potential cooperation between the two age groups, usually regarded as extreme sides of the intergenerational spectrum. The oldest group (seniors) includes working people in the age 65+. The youngest group are adults in the age 18–30. Specific generational features of both age groups in Slovakia are characterized and compared with those of their peers in other developed countries. The basic objective of the paper is to show that irrespective of the significant generational differences, the two generations need not be in a conflict. They can be even intrinsically motivated to cooperate. This cooperation can be based on a combination of the younger generation's energy, digital skills and sense for social and ecological progress with the working experience, patience, understanding of the character of socioeconomic changes and loyalty to employer organizations, typical of seniors. The last part of the chapter is devoted to intergenerational interactions in universities' environment and tasks of universities in educating graduates corresponding to the labor market requirements.

Keywords: intergenerational interactions, seniors, Millenials, generation Z, intergenerational division of labor, universities in the context of intergenerational interactions

1. Introduction

Recent demographic trends and some socioeconomic factors led to a situation that the share of older population was increasing, mainly in developed countries. On the other hand, birth rates were different across countries. However, globally, the youngest generation was the largest age group in the world's workforce [1] and its share will probably grow in the future. The importance of intergenerational interactions is increasing in the society as a whole and becomes a topic for research in different disciplines and for taking policy decisions at different levels. The demand for an "intergenerational fairness" became an important, internationally accepted, issue [2–4].

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From an economic point of view, aging of the population has been traditionally regarded as a burden for fiscal policy, increasing social and healthcare expenditures. Actually, it is also a political and ethical problem. Governments responded to mentioned demographic trends by restructuring pension systems, increasing the official retirement age, drafting labor market policy and enacting legislation protecting equal rights for different age groups. Companies adjusted by increasing the share of older employees in their workforce and multigenerational teams has become the widespread phenomenon. Employers' awareness of the importance of multigenerational teams in organizations and their effective management is increasing. They understand that for improving economic performance and image of companies, it is important not only for elimination of generational conflicts, but also for purposeful combination of different generations' skills and talent as a way of increasing the efficiency of their human capital. Simultaneously, this can also improve individual skills of members of the team, their self-confidence, intrinsic motivation and form an organizational culture more responding to recent requirements.

Literature on intergenerational interaction and cooperation has been intensively growing during the last decades for example, [5–11]. Special Management discipline (age management) arose as a response to mentioned demographic trends [12]. Most authors deal with cultural differences and interrelations between all age groups involved in current multigenerational organizations (Generation Z, Millennials, Generation X, Baby-boomers and eventually still working members of the silent generation.) However, problems of older workers (or potential workers) in the age 55+ are often in the center. Our chapter concentrates on two extreme age groups from this generational spectrum—the oldest group (seniors aged 65+) and the youngest group (millennials and Z generation).

There were several reasons for this choice. One of them was that people in the midcareer age sometimes see in their too young or too old colleagues a "disruptive" factor, not compatible with the established organizational culture, value system, etc. Both seniors and the youngest group are often an object of age discrimination at the labor market and—if they are employed—they often feel that midcareer colleagues are not accepting them. Sometimes, even policy measures not only at the national, but also at local levels, do not respect specific requirements of the two mentioned generational groups. However, on the other hand, some recent local tendencies to motivate young people in taking care of older citizens in the community can be inspiring also for other organizations [13].

Our ambition is to show that the two analyzed age groups need not be in a conflict, their specific cultural features can be mutually supportive and that they can and should cooperate. Their cooperation could be mutually advantageous and can contribute to improving not only the performance of the whole organization but can also be of benefit to the whole society.

The structure of the chapter is as follows: In the second part, we briefly explain research questions and the methodological approach. In the third and fourth parts, the basic characteristic features of the generation of seniors and the youngest generations are described. Common features with other developed countries and some specific features in Slovakia are outlined. In the fifth part, the ways of potential cooperation between the two generations, importance of internal motivation to cooperate and desirable forms of management measures to support this cooperation will be outlined. Finally, the sixth part deals with a type of an organization, where intergenerational interactions have always been important—the university environment. The importance of adjusting university education to recent labor market requirements is characterized also as a way to support young generation employment and professional career.

Qualitative research results—answers to research questions—are summarized in the seventh part of the chapter.

2. Research questions and methodological comments

The present paper tries to answer the following research questions:

a. Are the generational features of the two analyzed age groups in Slovakia to a high degree identical to those in other developed countries? What are the differences?

b. What are the perspectives of intergenerational cooperation between the analyzed age groups in Slovakia? Can they be motivated to cooperate?

c. What is the experience of multigenerational interactions in Slovakia's university environment and what can be improved?

The purpose of the paper is not to provide an econometric model and give quantitative answers to mentioned questions. A questionnaire-based research mapping the situation in the intergenerational cooperation within a particular organization or a group of companies is not useful for our topic. Seniors in the age 65+ are very dispersed among different organizations and locations and it would be very difficult to find a representative enough sample.

As a basic source of information regarding the oldest age group, interviews with generational peers were used. Most of the respondents were from the academic area.

The generation Z and a significant part of Millenials' generation are formed basically by students—either daily or very often external students who are simultaneously working. Interviews with these students and recent graduates, with some years of working experience (Millenials), were the basic source of information about the youngest generation's views.

All interviews were performed before the pandemic, in 2018–2019.

Official statistical data are also used to show the share of individual age groups in the total population in Slovakia and percentage of their employment. However, the classification of age groups in statistics (including EUROSTAT (Statistical Office of the European Union) does not correspond to the theoretical concept of generations.

3. Generation of seniors in Slovakia

Seniors in our paper represent the group of people aged 65+. They actually reached the official retirement age, but a part of them is still working. Mainly the silent generation but also some older Baby-boomers are included in this group. Most members of this group are people born during the war or immediately after the war. The experience from the war or the first years of after-war reconstruction—directly or indirectly—significantly influenced their value system, social and political views, attitude to work, etc.

While the youngest generation today is actually globally oriented and many features are common to young people in all (developed) countries, generational culture of seniors (and actually also of Baby-boomers) differs across countries. A very important factor generating the differences in cultural features of seniors in European countries was the fact that in post-Communist countries these people were 40 years

living and working in a totalitarian system. The impact of this system was significant mainly in the attitude to work, ability to independently think and creatively solve the problem, a tolerance to corruption, a tendency to manipulate with others and a respect to authorities—even if commands were connected with negative social consequences.

In Slovakia, the share of people aged 65 + represented in 2021 approximately 17% of the total population [14] and according to forecasts it will grow in the future. Although these seniors are in the retirement age, some of them are still working (**Figures 1** and **2**). The share of working seniors (including self-employed persons) was 4.9% in 2022 [14].

As mentioned above, seniors in Slovakia include mainly members of the silent generation whose characteristic features are described in the literature. Common characteristics can be summarized as follows [15]:

- Traditional values, such as hard work, thriftiness and loyalty.

- Financial prudence—they handle money matters with prudence and discretion. For example, they often repair an item before replacing it.

- Interpersonal respect—positive relationships with colleagues and clients alike.

- Determination—They often still choose to persevere in the face of adversity, large or small.

- Resilience—when they experience challenges, throughout their life they learnt to cope with different stresses and extreme situations.

- Strong work ethic that includes pursuing tasks until they are completed well and working as hard as needed to get a job done.

- Preference to communicate face-to-face and may enjoy working in a physical location rather than remotely.

- Willingness to make sacrifices for causes they believe in.

- Sense of fairness and justice.

- Flexibility in work scheduling, accepting even small tasks or part-time jobs.

- The silent generation is also sometimes referred to as "the builder generation," representing the memory of the organization.

- Probably, the most important feature of the silent generation, valuable for forming intergenerational teams, is their long-term practical experience, knowledge (mainly tacit knowledge) and professional skills.

- On the other hand, new technology and mainly digital skills are lower in comparison with younger generations.

Practical experience shows that mentioned features are typical also for seniors in Slovakia. Actually almost the same generational features can be relevant not only for the silent generation, but also for older baby-boomers, the age group 60–64 years. Both
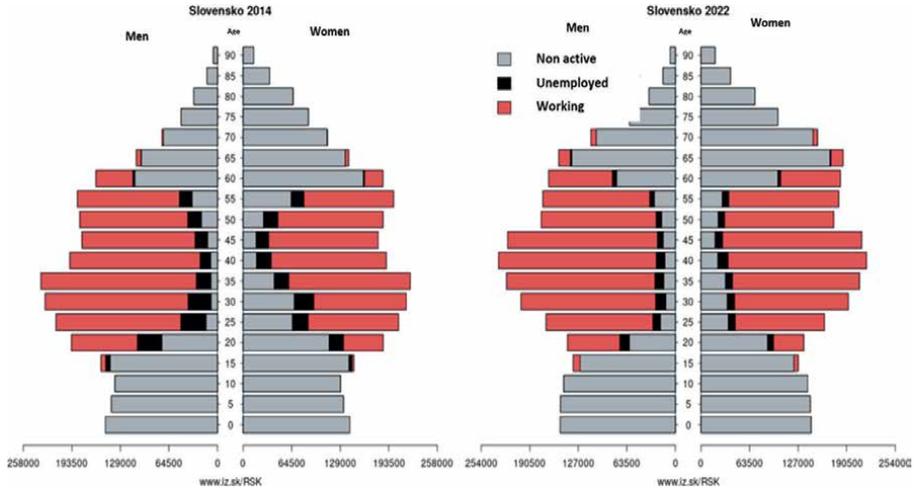
Figure 1.
Employed seniors can be found mainly in education and healthcare sectors, where the availability of younger specialists is not sufficient.
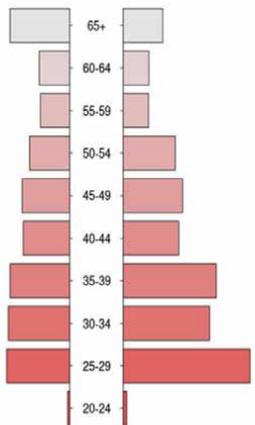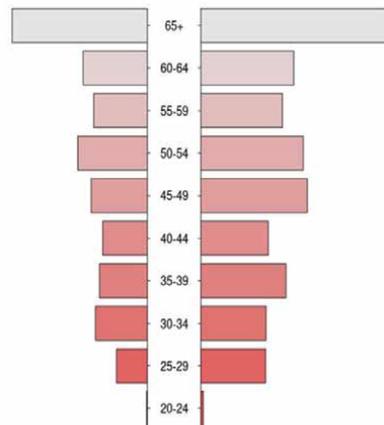
Figure 2.
However, generational problems of the workforce and age discrimination practices arise also in connection with the age group 60–64 years (older baby-boomers, 15.75% of the population) where the employment rate in the age group was 41% for men and 33% for women [14].

generations lived and started to work under a totalitarian system. While promoting some positive aspects of the work ethics, the system actually disused some inherited features of employees to fulfill the central plan objectives at any cost and achieve also some political goals. The possibility of independent decision-making, creative problem-solving was limited and career opportunities were biased by political criteria.

In comparison with generational peers in Western Europe and the USA, Slovak seniors are not rich, mostly do not occupy leading positions in the economic and political system and cannot be regarded as a barrier to younger colleagues' promotion. Due to their financial position, they do not represent a significant proportion in the aggregate consumer demand and their specific requirements are not respected enough by companies, producing and selling too sophisticated products. Lower digital skills are common for seniors in many countries, Slovakia as well.

An important aspect of generational culture is the emotional sensitivity. According to socioemotional sensitivity theory [16] with shrinking time horizons due to age, people become increasingly selective, investing greater resources in emotionally meaningful goals and activities. Younger persons tend to focus on future-oriented and career opportunities. Older people are oriented more on present and emotion-oriented goals that can be achieved by interactions with social partners. This is generally true also for Slovakia.

However, one who is considered as a desirable social partner depends also on the person's experience from previous activities, his values, life style, etc. For those who are actually dedicated to their professional activity, desirable social partners can be mainly colleagues, even if they are of different ages. This can be a factor supporting their desire to work longer, even in retirement age. Others prefer social contacts with peers in their community, village, free-time activities, etc.

Special role can be played by the family background, which will be mentioned later. Seniors in Slovakia are very strongly oriented on taking care of children and cooperating with young people (not only family members).

For employing organizations, it can be important that many working members of the silent generation continue to work in the same organization (or its successor) where they used to work during their active age. They know the company, know many colleagues, clients, suppliers, etc. This knowledge can be very useful for company's performance and also for human relations in the organization.

Some previous employees started a business of their own, based on their previous knowledge and skills. In such cases, the company can cooperate with these individual entrepreneurs and need not regard them just as rivals.

While during the years immediately after the Velvet Revolution, inheritance from the past and political motivation were often seen to be barriers to maintain seniors-specialists in the company (they were regarded as "old structures"), but todays' working seniors are in a different position. They have got several years' experience of working in a market economy and are familiar with the new ways of doing business. Some of them also improved their knowledge of foreign languages and helped foreign investors to establish in the country. These tendencies increase the value of the human capital represented by skilled, experienced and motivated active seniors and companies can benefit from their further employment.

Of course, each member of the seniors generation is unique, there can be differences due to regional factors, level of education, social status, etc. Even the impact of the totalitarian system was different for individual groups and types of people.

However, in our opinion, the basic factor causing cultural differences among members of the seniors generation today is the condition whether they are working or interested to work even in the retirement age or not. Those, who are fully retired, have changed their life style, concentrated on home activities, worked in the garden and participated in community activities. Their digital skills are limited to some basic needs.

Even if these seniors are not a perspective source of employees for organizations, respecting their rights, specific requirements, improving their social and economic

position and supporting different forms of intergenerational understanding are important tasks of today's society.

4. The youngest adult groups in Slovakia

The actually employed youngest generation in Slovakia is represented mainly by Millennials. The share of the age group 20–29 years in the total population was in 2020 approximately 11%. From this group, 40% of men and 21% of women are fully employed [14]. Adults younger than 20 years form a very low percentage of those taking up employment, with most of them studying or preparing for future work. However, it is surprising that according to EUROSTAT [17], the Bratislava region in Slovakia stands at the second *worst* place in the European Union (EU), regarding the percentage of people in the age group 15–29 years who are neither employed nor involved in studying activity. This percentage of people is 4.49%. Why is this percentage so high? In our opinion, it is not predominantly a result of age discrimination. An important reason attributed to the youth unemployment can be that the professional structure of graduates does not correspond to labor market requirements. Another explanation put forth can be some proportion of young women who are not employed because they are taking care of small children. However, it is also possible that some young people with permanent address in Slovakia are actually living and working abroad, attracted by higher wages, but are not officially registered.

What members of the age group 20–30 years belong to millennials and what is the Generation Z are difficult to distinguish. In our opinion, in transitional countries, people born in 1980s cannot be regarded as representatives of millennials. Technology development is not the only factor forming their cultural values. The socioeconomic system during the 1980s was significantly different than the system in developed Western economies. People born during late 1980s started their official education in the period when the old cultural values were criticized, but the new ethical standards were not yet clear. They witnessed the rapid enrichment of so-called "wild privatizers" who often achieved their profit by fraud and at the cost of others, who were respecting the rules of business ethics. Millenials in Slovakia are represented mainly by young people born in the 1990s and later and their adolescence is connected with the first steps of forming a market economy system.

Entrepreneurial activities of first privatizers were attractive for the young generation. An interesting phenomenon in Slovakia during the second decade of this century was a significant *increase in the number of entrepreneurs from the age group 20 to 30 years*. Their share in the total number of individual entrepreneurs in Slovakia increased from 13% in 2007 to 17% in 2016 [18].

Some of them were successful, some failed. It was clear that their experience and skills were not sufficient and some lessons from the field of doing business in a market economy were badly needed. Maybe, the more intensive intergenerational cooperation in the country could reduce a little the rate of failures. However, parents who tried to financially support entrepreneurial activities of their children were often not familiar with market economy rules and risks as well and lost some part of their property.

Not all members of the Millennial generation were interested to start a business of their own. Many Millennials preferred to be employed in established companies. In such cases, well-known problems of managing multigenerational workforce are coming to the fore.

Some basic features of the culture, life style, values, work attitude, etc., of the two youngest age groups are probably common to all countries. Their mapping and updating is exhaustibly provided by Deloitte *Gen Z and Millenial Surveys* [1]. Characteristics in our paper will be to a high degree based on the results of mentioned reports.

Millenials are usually understood as those young people who passaged into adulthood at the start of a new millennium. Originally, they were characterized as a new generation in America. Later on, the concept has been transferred to other countries and today it is used globally. They are history's first "always connected" generation steeped in digital technology and social media. They treat their multitasking handheld gadgets almost like a body part ([19], p. 8).

Basic priorities of this generation according to the Pew survey from 2010 [20] were as follows:

- Being a good parent

- Having a successful marriage

- Helping others in need

- Owning a home

- Having a high-paying career

- Having lots of free time.

During the next years, and especially due to the experience with the crisis in 2008–2009, Millenials' preferences have changed. Family starting plans were postponed, the importance of high payment increased and the work-life balance still remained very important. Other external factors influencing their behavior were the pandemic, new ecological demands and recently, the high inflation.

According to the recent Deloitte *Z Gen and Millenials Report* [1. 2022], the current views and approaches of the youngest generations can be summarized as follows:

- They are satisfied with their work-life balance (mainly due to more flexible work types during the pandemic).

- They see some improvement in the societal impact of their employers.

- Increasing cost of living is the top concern for both generations (42% of Millenials, 35% of Gen Y).

- They are afraid of unemployment (20% of Millenials, 22% of Gen Z).

- Climate change becomes a top 3 priority for both generations.

- Job fluctuation is a little lower than what it was 2 years ago, but it is still significant. Fifty-five percent of Gen Z and 57% of Millenials admit that they will leave their current job in the period under 2 years.

- Both generations are dissatisfied with their pay and under rising living costs they also try to find side jobs to improve their financial situation.

- Ethical and environmental criteria are important for the youngest generations. Sometimes, they turn down an employer or assignment that does not take into account environmental or ethical issues.

- Work is central to Gen Z's and Millenials' identity, but achieving balance is paramount.

- Economic problems hamper these generations' ability to plan for the future.

- Generation Z and Millenials prefer hybrid and remote work forms. However, as a negative consequence of remote work they mention: connecting with colleagues is more difficult, finding opportunities for sponsorship and mentorship is more difficult, career progression is limited due to physical distance from those that have the power [1 2022, pp. 6-17].

In Slovakia, the basic values and preferences of the current youngest generation are very similar. The similarity starts with their approach to technology. Millenials are the first "digitally native" generation. They grew up with the Net and they almost cannot imagine to live without Net.

They expect that technology will give them instant response to almost everything. They prefer communicating with text messages on smartphones before e-mails. They learn more by using videos or blogs in internet than textbooks.

In Slovakia, Millenials entered the labor market in the 2010s, actually after the crisis of 2008–2009 and they did not feel very much consequences of the crisis. Their expectations from the work often seemed naïve to older generations. They believed in the "omnipotence" of digital technology, hoped that they will be able to make use of their digital skills and knowledge in creative solving of practical problems (practical problems being often identified with independent entrepreneurial activities) and underestimated the actual complexities of economic and social life. They expected that their payment will be sufficient to achieve a relatively good living standard and a desirable work-life balance. All these expectations were connected with an opposition to traditional authorities and some traditional rules.

Although these expectations have been significantly modified by the experience from first years of practical employment, some basic features of Millennial's work culture still remain. They still believe in unlimited possibilities of the technology, but are more aware of the limitations of their own knowledge and practical experience. Most of them understand the importance of lifelong learning. They wish to be creative and do things that are practically important. However, sometimes they are not able to evaluate whether the task they are supposed to solve is practically important. They are highly team oriented.

They like "pleasant" work environment—with some benefits if possible. They prefer flexible or at least hybrid work schedule. Even if revolting against too strict formal authorities, they are able to accept direction and management support, but require flexibility and autonomy in task achievement. The role of financial motivation is for them very important, probably a little more than for their peers in other developed countries. They often prefer working abroad with higher salaries and better working conditions.

Millenials' fluctuation rate is high also in Slovakia. If they are not satisfied with the payment or other working conditions, they often change their employer 2–3 times within 3 years. It is a serious problem for employers' organizations they are not willing to invest money in training people who will leave shortly and may pass to competitors.

Millenials in Slovakia are interested in ecological and sustainability problems, but probably not so much as their peers in the Western world. They are probably also less interested in the societal impact of their employing organizations. However, human relations and general climate in the organization are very important for them.

Emotional features of the youngest age groups and their attitude to older people depend significantly on their family background. In this connection, an important phenomenon in Slovakia pertained to *three-generational families*. This type of families was widespread mainly in the countryside, but up to 1960s it existed also in cities. A basic reason for their existence was a lack of housing capacities for young families. Young couples (at that time, the average age to start a family was much more lower than that followed today) had to live together with their parents and children had grown in a three-generational environment. Grandparents helped to take care of grandchildren and by these activities actually supported a high rate of women employment in Czechoslovakia.

On the other hand, children accepted grandparents (seniors) as normal members of the family and regarded them not only as tutors or supervisors, but often also as friends and partners for their childhood activities. Seniors had the opportunity to monitor the physical and intellectual development of their grandchildren, compare it with the behavior of children's friends and understand the life style and values of the young generation.

These close connections between the seniors and the young generation remained often also later, when young families disponed with housing capacities of their own, but grandparents did not live too far.

After including in the organizations' workforce, Millenials become a part of multigenerational working community. However, multigenerationality character can differ between different types of organizations. Typical digitally based companies are usually hiring mainly young "digitally native" employees and the teams are composed of people in the same age, with similar cultural features, connected together, of course, by the general culture of the corporation. If the manager understands the values and attitudes of his subordinates and makes the tasks for them attractive, there are no problems of generational interactions.

In typical manufacturing companies and some services, the situation is even more complex. Different generations can be differently represented in individual departments, functions, etc. Managers should understand generational differences and assign the tasks according to specific abilities of different generations and motivate employees to cooperate.

5. Perspectives of cooperation between the youngest and oldest generation and some tasks of managing multigenerational teams

Our ambition is to show that the two "marginal" age groups should be intrinsically motivated to cooperate. At first sight, differences between the two age groups are significant, in some cases actually opposite preferences exist. Not all of them are just age depending.

To deal with the reasons of these differences, we'll use the theory about three overlapping processes influencing these values, known also as the A-P-C analysis [21]. These processes are: (1) life cycle effects (sometimes identified with age effects); (2) period effect; and (3) cohort effects.

Life cycle effects are reflected in those features that change during the life cycle of the generation. An example can be a revolt of young people against established authorities and institutions, which appeared several times in history, and later on was mitigated and the same people actually absorbed the traditional culture. We can see that some original features of Millenials' culture have been actually modified (stronger identification with work, lower job fluctuations, understanding of lifelong learning and importance of tutorship, etc.). On the other hand, current seniors' culture represents probably the final stage as a result of the lifelong experience. The understanding of other social groups and tolerance probably deepened with the age.

Period effects are connected with major events, such as wars; social movements; economic downturns; medical, scientific or technological breakthroughs. Recently, relevant factors causing period effects, such as COVID-19 pandemic, high inflation and impact of the war in Ukraine, are the same for both generations. A thriftiness of the old generations can be relevant also for Millenials under current inflation. Work from home used under pandemic was welcomed by the young generations and accepted as the only way out by the old generation. Under lockdowns, both generations had to spend more time at home and were forced to improve some of their technical (manual) skills as a substitute for otherwise bought services. "Do it yourself" activities became more important and experience of the older generation in this field was valuable for young people.

However, technological impact of the digitalization was present and intensifying all the time and the older generations had to improve their digital skills. Sometimes, seniors asked their grandchildren (e.g., to register for the vaccination) for help.

Cohort effects are very strong in the youngest generation, especially among students. However, becoming employed in a particular organization leads to widening contacts with older colleagues and less time remains for contacts with friends of the same age.

For seniors who are still working, the cohort effect is minimal. Contacts with younger colleagues prevail and contacts with peers of the same age are almost occasional.

Due to the three mentioned effects and also due to some other factors (political situation, regional aspect, family conditions), traditional cultural differences are somewhat modified or a little reduced.

Some different features of the two age groups can actually supplement each other and they can be combined to achieve a better performance. Many types of such combinations are mentioned in the literature and are well known from practice. For example, the energy of the young generation can be combined with the patience and tolerance of the old generation who have become mostly tired after years of intensive work. The digital skills of the youngest generation can be combined with the practical experience and knowledge of seniors (mainly tacit knowledge that cannot be learnt from textbooks). Different preferences for work schedules can be even used by managers to increase flexibility of teams and organizations. Willingness to help others, improve ecological trends and assure equal rights for each member of the organization can be common to both age groups.

An important factor supporting the cooperation between the two mentioned generations is the fact that *there is no rivalry relation between them regarding career*

opportunities. Seniors know very well that their time in employment is limited and they cannot aspire for leading positions. Millenials would welcome promotion, but they are aware of the lack of their practical experience. They also know that those who will decide on their promotion are not the oldest colleagues. However, there are examples of young people (under 30 years) who have been appointed to leading positions. In such situations, it is important that the young manager understands and respects older colleagues, identifies their preferences, skills and experience and is able to use them in the needs of the organization. If not, generational conflicts can arise.

For building an effectively working multigenerational organization, one cultural aspect, common to both analyzed generations, is important—*the respect to different generational (and also gender, race, etc.) groups and the ability to accept different cultures*. For Millenials, it is given by their high DEI (diversity, equity and inclusion) preference. For seniors, it is the result of long-term experience of contacts and cooperation with people of different ages, nationalities, cultures, etc. Usually, neither seniors nor Millenials are inclined to provoke intergenerational tensions or conflicts in organizations. However, among some members of the seniors generation in Slovakia (mainly those who are not working), a negative attitude to diversity still exists and it is a serious social and political problem.

Seniors in Slovakia (both working and fully retired) are forced to cooperate with younger persons, because without this help they will not survive in the current digitalized society. They are looking for help either in the family or in the organization they work with (or both). Contact with young generation is for them a source of energy and increases their awareness of the strengths and talents of this generation, which even more motivates them to cooperate. We can say that seniors are intrinsically motivated to cooperate.

The youngest adult generation in Slovakia has never been in such a strong opposition against the old cultural values and their representatives, as it sometimes happens in Western countries. With increasing practical experience they become more aware of different situations where older people can help them. Their motivation to cooperate is also supported by successful intergenerational cooperation in three-generational families. Intensive contacts between seniors and their adult grandchildren often remain, even if the families are not living together. Grandchildren can cooperate with their grandparents in different activities around the house, work in the garden, housekeeping, etc. A lot of valuable skills and tacit knowledge can be transferred within this cooperation. On the other hand, grandchildren can use their digital skills and help grandparents to solve different problems with working on computers and using up-to-date electronic devices. This type of an *intergenerational division of labor* should not be limited just to families. It can work also in other areas of social life, including employing organizations. The idea of three-generational teams is also involved in the current concept of "intergenerational triads" [22].

We tried to argue that the motivation to cooperate can be given even before the different age groups enter an intergenerational team or organization. However, the management should play an important role in fostering this cooperation and shaping it in such a way as corresponding to particular organization's objectives.

A precondition for effective age management in organizations is that managers understand cultural features, skills and motivation of different age groups in the team. Then they should create conditions in which all generations feel well and could effectively use their capabilities. These conditions can include different measures—from healthcare improvement, a more ergonomic workplace, through age-specific training courses up to

tailor-made motivation tools. The character of required age management tools depends on the type of the organization, size and structure of intergenerational teams.

Most authors emphasize the role of HR departments e.g., [10, 23] in forming the sustainable age-respecting climate in companies and then delegating responsibilities to lower levels of management. Some authors recommend to apply different motivational tools to different age groups in organizations. Others emphasize the importance of age neutral tools—equal rights for all members of the team, irrespective of the age. However, in the case of applying different management methods to different generations, a danger occurs that individual cultural features are not adequately understood, general stereotypes are applied and individual capabilities of older workers are not fully used. It can also demotivate individual workers.

An interesting approach to managing multigenerational workforce represents the Gentelligence's e recommendations [24]. According to this theory, the starting point to multigenerational management should be the *identification of assumptions about generational culture and overcoming false stereotypes*. These two actions are especially important in teams experiencing generational conflicts. The next stages are *taking advantage of differences and embracing of mutual learning.*

In our opinion, the mentioned approach can be especially relevant for forming intergenerational management in Slovakia's conditions. The first thing actually is to adequately define the capabilities of different members of the team (this is relevant for teams' management in general) and do not accept stereotypes that may not be relevant in a particular situation. Only then the rational division of labor in the team (assigning tasks to individual members of different ages) can be possible, which can lead to improved performance. This is a difficult task for team managers and HR policy and hiring strategy of the company can help them. However, if the old and young team members know each other from the previous contacts, they can contribute to this endeavor as well.

Practical experience shows that citizens in Slovakia are especially sensitive to equal rights approach and would prefer an equal treatment regarding employees of different ages in organizations. However, some limits exist. Seniors themselves understand that they cannot be promoted to top positions in the organization in the age 75 + .On the other hand, training possibilities are important to all age categories.

In the process of intensifying intergenerational cooperation, different *mentorship* forms can be used. Traditional forms of mentorship, when older colleagues perform the function of mentoring the younger colleagues, are not new. This has been the crucial form of knowledge and experience transfer between generations. Some companies try to use mentoring even more to support intergenerational cooperation. However, it is important to make the process of mentoring more acceptable for younger employees. This mainly means reducing (or abolishing) the element of manipulation. A feeling of being manipulated provokes an opposition among the younger people. However, seniors often do not realize that their approach can be manipulative and it is difficult to find an optimal solution.

Other form of knowledge transfer between generations can be the so-called *reverse mentoring.* This is the case when older employees not only learn from their younger colleagues, e.g., how to use new software, solve some technical problems with computers, but also acquire some information about the young people's requirements regarding new products and services, working conditions, etc. Young people usually do not tend to manipulate older colleagues, but the initiative, ask for an advice, must come from older employees.

However, a precondition to an effective working of this cooperation is a mutual trust and understanding.

A special type of working seniors in Slovakia are self-employed persons (e.g., a high share of doctors) where the crucial role is played by public policy and some regional authority's measures. Intergenerational interactions are relevant mainly in approaches to clients (patients),

6. The role of universities in the intergenerational context

Universities as a special type of organization are important for theory and practice of intergenerational interactions for two basic reasons:

a. In universities, the interaction of different generations has always been present (of course, in forms reflecting the particular historical conditions) and some classical methods of knowledge transfer between generations are useful also today.

b. Universities can play a significant role in adjusting young generation's knowledge and skills to the current labor market requirements. Generation Z is sometimes regarded as "the best educated generation in history" and this is undoubtedly the positive effect of world top universities' activity. However, are the graduates "best prepared" also from the labor market requirements? The answer can be different in different countries.

In Slovakia, there is a tradition of meeting a relatively high level of quality in technology-oriented tertiary education, new study disciplines are introduced and the number of Information and Communication Technology (ICT)-oriented graduates is increasing, but it is still not enough to satisfy the demand. A high proportion of graduates prefer employment abroad. This development is mainly not only due to significantly higher salaries there but also due to better other working conditions. On the other hand, there are graduates from other disciplines who are not demanded, so they are forced to accept jobs below their qualification or are unemployed. This phenomenon cannot be regarded as a classical age discrimination. The problem is more in the structure of university graduates, not responding to labor market demand and more deeply in insufficient cooperation between universities and industry, or practice in general. This is a complex problem that cannot be solved here.

In our opinion, an approach from the intergenerational interactions point of view can contribute a little to solving this problem.

Today's student generation differs from previous generations mainly due to the impact of digital technology and its role in the whole society. They actually represent a typical group Generation Z. Their demands on the quality of teaching and its relevance for practical life are increasing.

Increasing importance of the lifelong learning is reflected in the fact that an *ever larger group of students are external students who are simultaneously employed*. This brings a new element into the generational structure at universities. External students are of different ages and with different levels of practical experience. Sometimes they are active managers in companies. Their experience can be valuable for the teaching process and can support university-industry cooperation. However, a too strict application of mentoring methods that are useful in dealing with the young generation need not be relevant in cooperating with external students.

Professors and other university teachers are mainly members of older generations, sometimes often seniors. Older teachers have got many years' experience not only in educating students, but also in cooperating with colleagues of different ages and sometimes also cooperating with businesses. This experience contributed to their understanding of different generations and tolerance to different values and life style. Maybe, a problem in Slovakia is a low representation of practitioners from companies in teaching activities. Salaries of teachers are so low that these posts are not attractive for retired executives, not to speak about managers who are in the middle of their career.

Demands on education and requirements on skills of the teaching staff are significantly increasing. New demands are not limited just to the scientific background of teachers and their Information Technology (IT) literacy, but are oriented also onsome soft skills: ability to educate graduates who are critically thinking, creatively solving problems, effectively communicating and leading people and organizations, able to cooperate with colleagues from different cultures, etc. It is difficult to imagine that teachers who require from students just memorizing of given formulas and definitions, who are not willing to accept different opinions and discuss the pros and cons of different views, who are not able to flexibly communicate with students and to adjust the way of communication to different types of students, will prepare graduates with required skills.

Scientific background of university teachers can grow with their age (of course, there can be exceptions) and be reflected in achieved degrees. Digital skills can be different, usually they are higher among younger teachers. Interpersonal skills can be to a high degree, independent of the age. They depend mainly not only on the personality of a teacher, but can be influenced also by experience from many years of working in a particular organization.

Soft skills required today should be based on intergenerational (and intercultural) *cooperation*. Within universities, different age groups of teachers (and also PhD candidates) should cooperate on improving the system, based on the best practices achieved in applying innovative methods of working with students and also cooperating with employers. Management system at universities should create conditions supporting this cooperation and assuring a respect and attention to all suggestions, irrespective of the age group from which the proposal comes.

The principle of *mutual respect and trust* is very important also in the interaction of teachers and students. Authority of a teacher cannot be given just by his/her position in the hierarchy, but it depends also on the ability to respect and discuss other views, give responses to students' questions in a wider professional and socioeconomic context. Students appreciate such an approach. For them, it is very important to see the practical relevance (and limits) of theoretical concepts.

7. Discussion

In this section, we'll briefly summarize qualitative results from interviews and try to show how they helped to answer research questions.

a. Interviews with peers from senior's generation and with students helped to answer the first research question. They have shown that cultural features of the oldest generation in Slovakia are in many aspects similar to those mentioned in the literature and based on the experience from Western countries. The basic

difference is that in Slovakia this generation is not rich, does not occupy a leading position in the society, is emotionally very sensitive and prefers taking care of children and contacts with the young generation. Persons in retirement age, who are still working, are motivated to a high degree by their work dedication.

b. The youngest generation is globally oriented and its cultural features are similar to values of their peers in other developed countries. The difference probably is in their even stronger payment motivation, a little lower dedication to societal and ecological issues and a stronger sense for family contacts, including positive attitude to older persons.

c. Cultural differences between the two generations are still significant, but some recent tendencies (changes in external environment—pandemic, high inflation, family background and the pressure of increasing digitalization in the society) seem to increase the understanding of the necessity to cooperate within both age groups. It can be said that intrinsic motivation to cooperate is increasing. However, management activity to support this cooperation is very important. Citizens in Slovakia will probably prefer equal rights (neutral) approach in the treatment of different age groups in organizations. Special role can be played by self-employed seniors (e.g., doctors) where the role of public authorities is very important.

d. Universities should intensify even more intergenerational cooperation with the students and between the faculty member and improve the cooperation with business (and practice in general) to adjust the structure and skills of graduates according to recent labor market requirements.

8. Conclusions

The basic idea of the paper is to show (in the case of Slovakia) that although differences between the two age groups (differences in culture, work attitude, life style, digital literacy, etc.) are significant, they can support or complement each other and can be combined in a way that is beneficial to members of both groups, total organization and the whole society. Such a cooperation can be a practical example of generational equity, intergenerational fairness and can significantly contribute to successful implementation of *Diversity, Equity and Inclusion policies in different organizations and countries.*

One of the limitations of our approach is that the analysis concentrates just on seniors in the 65+ age group, while other authors include in their research also younger seniors (e.g., 55+). In author's opinion, the interviews with actually oldest group of seniors can better show some specific values of Slovakia's seniors and reasons why they are still working.

The basic limitations are given just by the core method used: interviews with randomly chosen respondents from the youngest generation and subjectively selected seniors. Research oriented on all age groups and using up-to-date quantitative methods could increase the relevance of acquired data.

However, at the qualitative level, the presented research provides some interesting information on the generational features of both age groups in Slovakia and perspectives of their motivation to cooperate.

In supporting this cooperation and solving some intergenerational problems (e.g., youth unemployment), the important role can be played by universities and other educational institutions that should adjust professional structure and skills of graduates to the labor market requirements.

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Chapter 6

How an Intergenerational Laboratory Can Help Manage Longer Working Life

Eleonora Barone

Abstract

In a context of longevity, it is very likely that work cycles will increase in terms of the number of years worked and the number of experienced changes. Labor transitions have come to gain space in longer life cycles within much more unstable work environments. However, currently, it does not seem easy to change jobs, let alone switch sectors, especially at an older age. Also for companies it is becoming increasingly difficult to reach the talent that they consider essential, and even if they find it, many of them experience difficulties in retaining it or ensuring effective understanding among all generations in their teams. Do companies have channels to find the talent they need? Do we have spaces to manage the transition between one work experience and the other? This chapter shares the results of an intergenerational laboratory of innovation (iLABi), as a possible model for managing job transition and talent rotation. The possibility of having hybrid spaces, blending personal and professional life, that challenge people to solve real problems collectively, could not only benefit people as workers but also benefit companies, in its talent chain and in their ongoing pursuit of efficiency and sustainability.

Keywords: job transitions, change management, multigenerational workforce, intergenerational interactions, generational differences

1. Introduction

We know that work is an essential ingredient in our existence, and we also know that to ensure a long and healthy life, we rely on the approach of the life cycle and healthy aging [1–3]. This approach includes participation, health, social interaction, work itself, the environment, and, in general, the biocultural conditions [4] in which we live, along with many other factors that will significantly influence how we age and how long our lives will be. It is important to note that only about 25% of the way we age is influenced by our genetics, while the remaining 75% is in our hands and represented by epigenetics, essentially our habits and our environment [5]. Just as the resources, the city we live in, and the relationships we maintain, work shapes our daily environment and influences how we will age. It is in our hands to take care of our

professional trajectory as a key aspect of our lives, alongside our physical, mental, emotional, relational, financial health, and so on [6].

Globally, there is a widespread pressure to work more, extending the active professional life to reduce the burden on pension and social systems. However, within the framework of healthy aging, it is not only about prolonging the working life arbitrarily, but rather about ensuring that everyone has access to professions that make their lives sustainable and, above all, allow them to continue developing as individuals, meeting their needs, purposes, and desires.

The life expectancy, and even more the healthy life expectancy, is not homogeneous across social classes, educational levels, types of work, or even residential locations. Some studies indicate up to 10 years of difference in life expectancy between social classes in different neighborhoods. Additionally, people with less qualified manual occupations have a lower life expectancy than social classes with more qualified nonmanual occupations. In that sense, it would clearly require an extensive reflection on the factors that influence people's lives over the years to answer the question of whether long lives entail long careers. But in this article, we want to focus on labor transitions and how we can take the most advantage from the context of an aging society.

Do companies have channels to find the talent they need? Do we have spaces to manage the transition between one work experience and the other? Those are the general question marks of the reflection. If we can generically assume that a longer life expectancy influences a longer work expectancy, the hypothesis is that spaces, projects, channels, and entities will be needed to facilitate these transitions, and they should not be left in the hands of a few privileged individuals with the best economic and educational conditions, the best opportunities.

Specifically, the article will showcase the results experienced in a social innovation project called iLABi, which will be used to break down and enumerate, in a deductive manner, some of the aspects considered relevant when it comes to successfully navigating the waves of a long and prosperous career and how the possibility of having experimental spaces, similar to iLABi, facilitates personal and professional transitions, not only from an individual standpoint but also from the perspective of companies and, more broadly, neighborhoods and communities.

2. Methodology

This contribution supports its assumptions through a data search that quantitatively aims to describe the dynamics of the current and immediate future labor market. The methodology used for studying the context therefore is quantitative. In the available literature on the labor market, there is a clear distinction between job seeking from the perspective of an unemployed person and career development from the perspective of an employed person. The former can be seen as a reactive stance, which connects us to a series of issues related to labor market exclusion and the difficulty of reintegration. On the other hand, the latter, a proactive stance, seeks the best opportunities from a relatively stable position, and it is more closely linked to motivational aspects, such as reasons for wanting to change jobs, companies, or projects. These two positions in the labor market have numerous other nuances related to individuals' life cycles, making the overall landscape more complex to describe. In fact, comparing both situations can be quite challenging without oversimplifying.

The second part of this article presents a model proposed as the result of a project designed and developed by mYmO, an intergenerational innovation entity based in Madrid. This model has been evaluated and is used to deductively verify alternatives to staying active in the labor market and managing labor transitions that may be anticipated or encountered. In this sense, the article does not analyze the barriers or difficulties that individuals may encounter when facing these transitions in their career paths. Instead, it uses a case study to verify how this model can be used as a viable alternative for managing the life and work changes that come with long and fulfilling lives.

To summarize, the first part of the context and proposal's foundation includes an analysis of quantitative data extracted from official European and non-European sources. The second part, on the other hand, is based on a qualitative analysis that will be extrapolated with deductive logic to scale its scope and objectives so that it can serve as a reference model for managing labor transitions in aging societies.

3. Labor market and professional transitions

To contextualize and justify the proposal, the focus has been placed on specific and rather quantitative aspects, selecting two indicators. The first indicator is the number of career changes that individuals will have to face as a logical consequence of adding years to their lives. The second indicator is the number of years people stay in the same position, linked to knowledge obsolescence driven by technological changes in the market. These two indicators allow us for a quantitative understanding of the dynamics of the labor market and the challenges to be managed by longer professional lives in a long-lived society.

What does it mean to have a long professional life? Starting with the first indicator, it appears that the traditional concept of a lifelong career, where individuals spend their entire working lives in the same company, as their parents or grandparents may have done, is at risk of extinction. Although some people can stay in the same position or company for more years, it is assumed that a longer life expectancy will lead to more professional transitions.

> *"One in 16 workers may have to switch occupations by 2030. That's more than 100 million workers across the eight economies studied—and the pandemic accelerated expected workforce transitions."-McKinsey [7]*

European statistics from recent years, reported in newspapers, media, or private company reports, have indicated that, on average, people make a career change approximately between five and seven times during their working lives. Looking beyond Europe, there are studies that talk about job turnover and mention the possibility of up to 12 job changes in the lives of adults, as seen in a publication with data on the work life in the United States. A Bureau of Labor Statistics (BLS) news release published in August 2021 (based on data from 2018) analyzed the number of jobs that people born between 1957 and 1964 held from age 18 to age 54, indicating an average of 12.4 changes, with variations between age groups and genders [8].

It is not easy to rely on data that speaks about labor transitions, especially because there is little consensus on how to define the context for analysis, as differentiating between a job change, an employment change, or a career change varies. This lack of clarity makes it challenging to determine how many times a person has experienced a

change, a job transfer, a promotion, or a professional leap. As a result, the data found is not easily comparable.

On the other hand, EUROSTAT data [9], updated to April 2023, quantifies annual transitions, on a quarterly basis, between employment, unemployment, and inactivity in the labor market. By measuring the percentage of employment, the percentage of unemployment, or the percentage of people outside the labor market, EUROSTAT tracks the changes of individuals who have moved from one situation to another, combining the three states with each other and yielding nine possibilities: Employment to Employment; Employment to Unemployment; Employment to Inactivity; Unemployment to Employment; Unemployment to Unemployment; Unemployment to Inactivity; Inactivity to Employment; Inactivity to Unemployment; Inactivity to Inactivity.

Talking about transitions from the perspective of employment to another employment, the European average (EU27 countries) is 94%, with the unit of measurement being the percentage of employment. This data indicates that 94% of transitions to employment come from individuals who were already employed. On the other hand, looking at transitions from unemployment to employment, the European average is 38.4%, indicating that the proportion of people who manage to transition from unemployment to employment is relatively low. In other words, those who find employment after being unemployed do not constitute a majority. The differences between countries in this regard are significant, and Spain (35.9%) is around the European average in terms of the growth of mobility from unemployment to employment.

Spain is below France (42.3%), Portugal (46.8%), or Poland (37.0%) but above Greece (22.8%), Italy (29.3%), or Slovakia (22.3%). The countries experiencing the highest mobility are Germany (49.8%), the Netherlands (59.5%), Denmark (59.8%), and significantly topped by Iceland (68.7%), which has the highest percentage of transitions from unemployment to employment in Europe.

Finally, if we look at the data from the point of view of inactivity, measured as the percentage of the population outside the labor market, the European average is 9%, indicating that reentering the labor market after being inactive is very complex. In fact, 87.4% of the population that is outside the labor market remains inactive throughout the year, as shown by the analysis of data from the flow of inactivity to inactivity.

Conversely, the flow from unemployment to unemployment is much smaller (37.1%), indicating a much higher mobility and possibly representing dynamics of temporary or fixed-term jobs that lead to greater rotation in changes. In this case, the differences between countries are quite significant: Spain (42.8%), France (35.5%), Portugal (35.0%), Poland (32.8%), Greece (56.7%), Italy (34.3%), Slovakia (71.3%), Germany (25.1%), the Netherlands (17.3%), and Denmark (17.3%). EUROSTAT provides data from the last 10 years, allowing us to verify that the trend toward rotation and professional transitions is increasing in almost all countries, with few exceptions, such as Switzerland, which maintains its percentage almost unchanged between 2013 and 2022 in the three states of employment, unemployment, and inactivity toward employment.

Looking at the Spanish situation in more detail, this trend of increasing transitions is confirmed by the latest data updated by the Spanish Public Employment Service (SEPE), which indicates that in Spain in 2022, throughout the year, 53% of employed individuals signed a new employment contract, followed by 21.78% who signed two contracts. The remaining 15% are above the rotation index, meaning they formalized three or more contracts throughout the year [10].

Regarding geographical mobility between autonomous communities, we see that in terms of contract volume, mobility is characterized by a higher presence of men under the age of 45, of which more than a third are foreigners, and two-thirds have not completed secondary education. These individuals are employed in agricultural or service sector companies and in elementary occupations or in occupations related to food service, personal services, protection, and sales. As for occupational groups, the highest mobility rates occur in higher professional groups: managers and directors, scientific and intellectual professionals, support professionals, and skilled workers in agriculture, forestry, and fisheries. Except for the latter and elementary occupations, all other groups have increased their interregional mobility rate in 2022 [10].

The second indicator is linked to the factor of innovation in the market: how innovation, especially technological innovation, accelerates knowledge obsolescence. In the past, someone in their 30s could stay with the same typewriter as their main tool for 10 years of work. Currently, a person cannot go even 2 years without some system or tool directly linked to their job being modified.

To provide data in this context, an interesting reflection comes from looking at the number of years a person remains in the same position or company. Consulting the data from the SEPE updated to 2023, it is seen that among workers aged 25–34, the average job tenure is 2.8 years. Among those aged 35–44, the average job tenure was 4.9 years, and among those aged 45–54, the average job tenure was 7.6 years. The average tenure increased to 10.1 years for workers aged 55–64. In other words, it seems that the older people, the fewer changes they experience. This same data is evident in different contexts, as testified by the materials of the European Aspire project, which mention that "Older workers make fewer job changes than younger workers. This could be because as some people progress in their careers, they finally find the right job that allows them to make good use of their skills and interests them. However, older workers who are interested in a job change are reluctant to do so for various reasons" [11].

Regarding educational levels, in Spain, occupational mobility has increased for all levels during the last year, and in general, it is observed that the population group that moves the most is that under 25 years old, followed by individuals between 25 and 45 years old [10]. Spanish newspapers describe this situation in terms of desirability or motivation by generational groups, mentioning that employees between 25 and 44, of whom 33.5% have made a career change, are seen as proactive, while those over 45 were more conservative, with only 16.4% changing jobs [12].

The typical profile of a worker who has changed occupational groups more frequently in the last year, with a higher mobility rate, corresponds to a Spanish man, and those under 25 years old. It is also slightly higher for temporary contracts. Regarding educational levels, the highest rates of occupational mobility are found among those with education beyond high school, with the highest rate in 2021 observed among workers with a higher vocational training level [10]. Contrarily, the lowest occupational mobility rates are observed among women, those over 45 years old, individuals with primary education, and foreigners from outside the EU. This profile is more common in the service sector, where a higher rate of job stability is observed. In terms of occupational groups, the ones with the highest mobility rates are managers and directors, skilled workers in agriculture, technical and support professionals, and accounting, administrative, and other office employees. Conversely, the group of elementary occupations shows the lowest mobility rates [10].

How many times will a 40-year-old person change jobs in the coming decades? What about a 60-year-old? These questions raise the issue of how these transitions will

occur between positions, departments, and companies. Will all individuals have the information, access, and ability to manage these transitions satisfactorily?

In summary:

- The number of professional transitions is increasing in most European Union countries. Different sources mention a minimum of five to a maximum of 12 changes within a career trajectory.

- Data indicates higher flow mobility from unemployment to employment compared to employment to employment or inactivity to employment. It appears to be easier to find employment when already employed rather than when unemployed or inactive.

- The number of years a person stays in the same position or company typically ranges from a minimum of two consecutive years to a maximum of 10 years, with young men under 25 years of age experiencing more frequent changes.

- The analyzed data does not provide detailed information on the diversity of the population regarding gender, age, or educational background. However, it seems that individuals with higher levels of education and generally young men are more mobile.

The data presented in this article aims to describe a rapidly changing reality and provide a dynamic image of possibilities without delving into comparative or qualitative details. It approaches the potential future scenario of a long professional life with many transitions. The article assumes that this scenario—a long professional life with numerous transitions—serves as the context for reflection.

4. Introduction to the case: iLABi–intergenerational laboratory of innovation

The case presented is called iLABi, an Intergenerational Innovation Lab, which was designed in Spain before the COVID-19 pandemic to address a local need, specifically from the Madrid City Council and the Agency for Employment. The laboratory has been executed twice in 2018, in two different districts in southern Madrid—Villaverde and Vallecas—with the aim of supporting unemployed individuals in redesigning their career paths in the labor market.

The program's duration ranges from 3 weeks to 3 months, and it brings together people of different ages and generations to share knowledge, learn, and co-create around a common challenge that involves them designing collective projects. The intergenerational innovation entity mYmO designed the iLABi proposal, considering the program's objectives and its format. From mYmO, we have coordinated the development of the itinerary, designed the content, and proposed trainers, mentors, and advisors in line with the project's goals. The main idea behind iLABi is to empower people from being job seekers to becoming job creators, encouraging a shift in perspective that turns them into change makers and creators of social innovation projects (**Figure 1**).

The iLABi is described as a train-action itinerary that provides unemployed individuals with innovation tools so that they can create their own employment through

projects that contribute to social transformation and improve their community and neighborhood.

The general objective is to boost collective intelligence to strengthen local communities and promote positive changes. The specific objectives include creating employment opportunities, promoting social and labor integration of participants, generating projects that address identified needs, fostering an entrepreneurial attitude, and encouraging both employment and self-employment. The proposal also aims to cultivate a culture of social innovation. The iLABi was an innovative program designed to address local needs in Madrid, by empowering unemployed individuals to become change makers and creators of social innovation projects. The program's format was unique compared to other formal training offered by the city council, and it was open to individuals of all ages, removing age restrictions.

The program was divided into two cycles: the first 6 weeks focused on training, while the second 6 weeks emphasized action. During the second cycle, participants engaged in fieldwork, team collaboration, and project mentoring. The Human-Centered Design (HCD) methodology was employed to train individuals in project design. Stable groups were formed to go through the HCD phases of research, ideation, and implementation, resulting in the development of viable projects. There were three additional transversal spaces in the program: learning among peers, open breakfasts for the community, and mentoring. Peer-learning communities aimed to foster creativity and innovation, where individuals engaged in collective learning and shared knowledge in specific domains, seeking to create an impact in their neighborhoods (**Figure 2**).
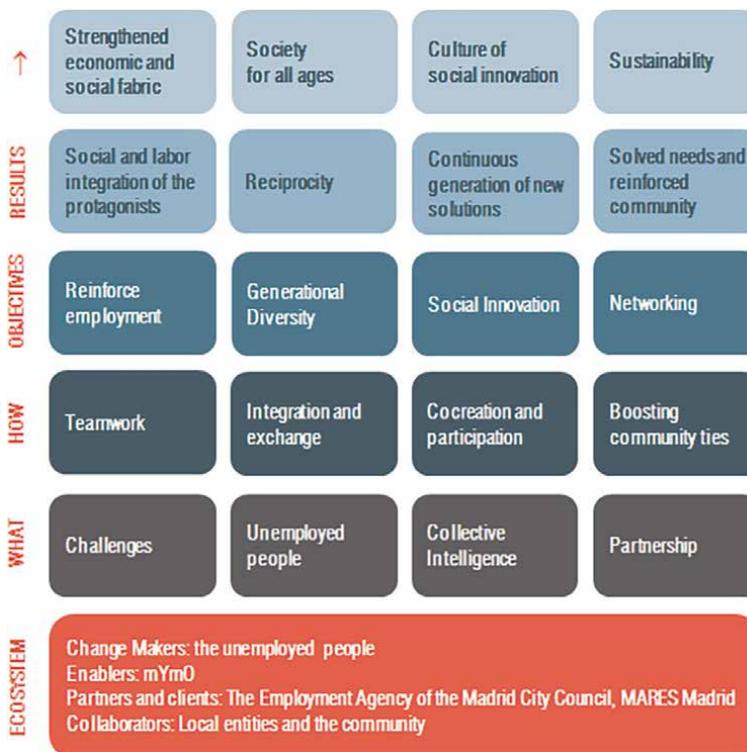

Figure 1.
iLABi results chain.

Performance	Hours	Cycles
46%	66	Training
25%	36	Teamwork
10%	14	Field work
11%	16	Action and Assesment
8%	12	Learning among peers

Figure 2.
iLABi training development.

Mentoring was offered as individual support based on the identified needs of participants through an initial interview. It provided guidance on project formulation, decision-making regarding job insertion, or managing life changes related to their employment situation. Open breakfasts with the community served as gatherings where people from the neighborhood could share ideas and suggestions while learning about the projects being developed in iLABi. This approach facilitated open innovation, as the first phase of the HCD process involved immersion in the context and research. To achieve this, the teams conducted interviews, gathered data, and established relationships with individuals and entities in the neighborhood to identify its priority challenges and extract the main insights. The two open breakfasts were designed to involve interested individuals and entities in this initial phase, fostering open innovation with the active participation of the community.

Participants in the iLABi program spent 3 days a week in their neighborhoods, working in team settings in classrooms provided by the Madrid City Council's Employment Agency. They focused on designing and developing projects to address local needs aligned with their interests, ensuring both community impact and personal and professional fulfillment. The most significant aspect of iLABi was the shift in perspective from traditional empowerment and active job-searching approaches, typically offered to unemployed people by public administrations. Instead, iLABi encouraged participants to view their environment as an opportunity to effect change, empowering them to identify and address issues they disliked in their community, actively.

Overall, the iLABi model presented an innovative approach to training and empowering individuals to become proactive change makers, creators of social innovation projects, and contributors to their local communities.

The participants ranged from 20 to 25 people, although the number decreased as the first few weeks passed, stabilizing at around 15 participants. The team behind this laboratory was also quite extensive, consisting of approximately 46 people in its first edition, including all trainers, facilitators, and mentors. This was a significant difference compared to the standard modules of certified training offered by the public administration, as it primarily included entrepreneurs and businesspeople rather than employees. This way, the participants had direct access to the source of innovation from individuals who personally experienced what they were transmitting.

We trained people's critical eye to decode opportunities in their environment, identify talents, and enhance them, all with the goal of achieving the feeling that through a common objective, things can indeed be improved. We worked diligently for a more inclusive and sustainable world.

The projects' development level concluded with a pilot test in the form of a minimum viable product, connecting people with the methodology at a practical level and the need to conduct tests to validate assumptions. In any case, success was not tied to the level of project detail. We were not seeking million-dollar startups; in fact, our intention was to generate projects, not entities. The main objective was to empower people, make them feel like protagonists, train them in a culture of design and project management, and help them realize that they were already working, having a real purpose, a team, and potential clients.

One of the most revolutionary aspects of iLABi was precisely addressing the frustration experienced by unemployed people seeking new job opportunities. They would spend hours sending out resumes during the traditional job search process. Normally, they received few or no responses and rarely had the chance to meet the organization's recruitment team they contacted, which meant they did not receive feedback on how their experience or talents matched the positions. The level of frustration from investing thousands of hours in working on their CVs without any response was usually very high. In contrast, the level of engagement with real people, engaging in weekly work that activated their talents while pursuing social change and community improvement in their area of residence, was typically extremely high. This has been evidenced by the evaluations of the two iLABi editions.

The motto was, "Here, employment is created, not sought." But creating employment was not just about the possibility of some of the outlined projects prospering, but it encompassed all the indirect opportunities that arose from the 3 months of coexistence. Among these, we identified the following five main opportunities:

- The trainers and facilitators were entrepreneurs or businesspeople, not employees of the same organization coordinating the training space. This led to interesting professional connections later in time.

- The people and entities interviewed by the teams during the program were also potential employers, thus activating previously dormant opportunities.

- The coexistence also fostered spaces for peer interaction, partially self-managed in the style of communities of practice, which encouraged authentic dialog beyond professional interests. As a result, strong personal bonds were formed and sustained over time. This community itself generated personal connections and indirect job opportunities.

- The personal empowerment achieved throughout the experience became an asset to be valued, marking a significant change, particularly in terms of attitude. The energy generated and the sense of belonging to a community with a common objective had a relevant impact on personal development and self-esteem.

- Addressing specific problems arising from the analysis of the current situation also created opportunities across multiple sectors.

In summary, the laboratory is an intersectional unit of social innovation involving different stakeholders, and its ultimate outcome goes beyond personal empowerment, aiming to strengthen the community.

iLABi is a practical experience where people TRAIN and WORK.

iLABi is a community project. We work in a network putting local and community values at the forefront to be part of the solution.

iLABi is social innovation; given its format as a laboratory, its content, and above all by considering unemployed people as "Change Makers," it is connected to other ways of creating employment.

iLABi is intergenerational as it connects people of different ages that suffer the same discrimination when unemployed, one part due to their lack of experience and another part due to ageism. Working as a team with this focus guarantees better learning for both groups, strengthens collaboration, and provides inclusion.

iLABi is a powerful tool to showcase our own purpose and build societies with socioeconomic wealth.

5. iLABi impacts and results

The two iLABi projects executed in 2018 were evaluated by two external anthropologists who were not part of the organization. Special attention was given to the first pilot project to verify its replicability and sustainability (**Figure 3**). A qualitative methodology was used, allowing the researchers to observe people in their context and analyze the meanings of activities and spaces in a deep and descriptive manner. Some of the considerations presented in these chapters are extracted from the evaluation documents. A few quotes from both participants and key people on the client side, the public administration, have also been included.

Let us explore the assumptions, framework, and value proposition of iLABi to deduce some insights that could be considered significant for managing labor transitions.

5.1 The future of work and the connection with the context

The main reason for launching iLABi is based on a reflection regarding the radical changes in the labor market. As we have seen, not only will we have to manage more labor transitions, but the format of work could also be different. It might entail changing not only companies or roles but also sectors, types of contracts, and more.

In the very near future, it is highly likely that we will have to combine traditional employment with project-based work, entrepreneurship, consulting, volunteering, and so on. Continuing to seek traditional permanent contracts corresponds to a reality of the past. Additionally, considering that many of the services and products we might need do not even exist yet, this can be seen as good news if we focus our efforts correctly.

The emerging possibility from these types of Labs is to create employment through personal initiative, not necessarily by turning everyone into entrepreneurs (a concept that has been overused lately), but by nurturing collaborative work, a project-oriented culture, and even combining various alternatives at once.

In rapidly changing markets, the prospect of diversifying risks and experimenting with different paths to remain active in the workforce sounds appealing. By embracing these changes and adaptability, individuals can find new and innovative ways to create value in the labor market.
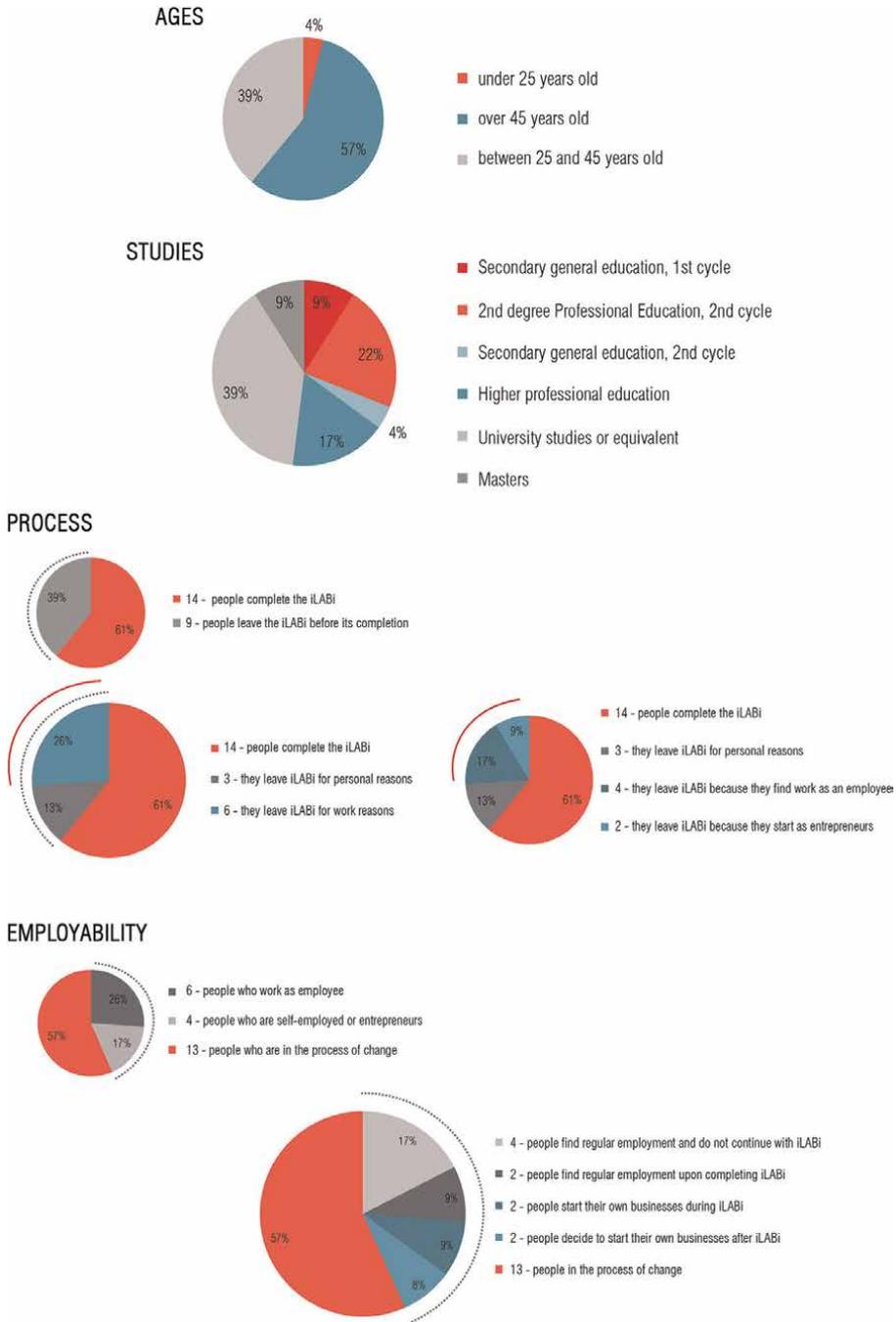
Figure 3.
iLABi data from the first pilot in Villaverde.

5.2 People as change makers

The central focus of iLABi is to position individuals as change makers. The concept of being a "change maker" is highly valued due to the potential social impact the

project can have in the medium and long term. Through iLABi, participants experience a transformative process that changes their perspective on society, leading to a desire to improve not only their own lives but also the lives of others.

During their participation in iLABi, both the participants and the public administration, which acted as the client, found value in designing the activities from the participants' perspective. The program's design and planning focused on empowering and giving autonomy and decision-making power to the individuals shaping the program. Many activities were self-managed, and there was time and space for listening and incorporating changes based on their needs.

- "Thank you so much for taking me out of my comfort zone."-(Quote from participants)

The importance of horizontal relationships was emphasized by the employment technical staff at the Municipal Board. They advocated for participatory processes where beneficiaries actively design their own itineraries and emphasized self-management and horizontal work among participants.

Participants who went through iLABi shared their experiences of feeling invisible and disconnected from reality and opportunities while transitioning between projects or seeking employment. They highlighted the challenge of accessing spaces for dialog, learning, and testing their abilities to verify their marketable talent and employability. By participating in iLABi, individuals not only learn how to design their own professional projects but also gain a value proposition perspective when preparing and sending their CVs. This enables them to demonstrate what they can contribute to organizations rather than merely making requests or sending standard resumes. They also improve their networking skills and perceive the labor market as something to explore rather than an amorphous mass to place orders into, seeking employment without receiving any responses.

Throughout the months or sometimes years that individuals spend redesigning their professional projects, it can be beneficial to have spaces where they receive support and engage in collaborative work. iLABi serves as a bridge between one job or project and the next, providing a platform for individuals to become change makers. It offers guidance and community support during the transitional phases, empowering them to embrace the potential to effect change.

5.3 Learning by doing and the format

The laboratory mixes theory with practical aspects. The manager of the Employment Agency insisted on the importance of innovation, participation, and group methodology, particularly emphasizing the experiential methodology promoted by iLABi: "what will improve the participants' competencies is learning by doing, and iLABi is also a way of learning by doing."

The laboratory format allows experimentation, iteration, and the ability to test and stay connected to local needs, enabling the adjustment of products and services in real-time and in the logic of continuous improvement and piloting. It is possible to put into practice what is learned and continue building knowledge collaboratively. The presence of different profiles and generations positively influences this aspect even further.

Having spaces for experimentation and piloting seems very relevant also to understand if people feel they have the necessary skills and strength to undertake something

or go for a transition. Before embarking on a job change, starting a business, or seeking a shift, having a safe space to test the desire for change seems relevant.

5.4 Analytical thinking and creative thinking

The laboratory provides the necessary tools to comprehend the social economy, new business models, and the ever-expanding network of stakeholders that need to be considered for social projects to be sustainable. We train individuals using innovative tools employed by professionals in agile businesses, such as Design Thinking, Business Model Canvas, Service Design, and so forth, aiming to generate ideas that can progress into viable projects from a problem-solving perspective. The key element is the opportunity to work as a team in designing projects that address real-world problems. Continuous feedback is provided, and the skills developed go beyond traditional hard skills.

The fact that the training is based on activating the ability to observe and think in terms of solutions rather than of problems is a capacity that will be increasingly important, especially with the advent and implementation of artificial intelligence. The areas where humans will continue to add value are mostly linked to creativity and problem-solving. Therefore, training these skills is crucial to remaining active in the job market.

- " ... What I did like were the tools I learned; for example, I was unfamiliar with the canvas, but I find it very useful for the future."

- " ... It made me realize that we can ground some of the ideas we have in our heads by exploring other avenues." (Quote from participants)

In this sense, iLABi aligns with the demands of the current job market because it creates a common space where professionals share knowledge, learn together, generate solutions for real needs, and work toward a common goal, enriching society itself. We are not merely talking about conventional training but rather about evergreen content, timeless and entirely necessary in a continuously evolving world, where needs cannot be predicted far in advance. In fact, the latest report from the World Economic Forum [13] on the future of work mentions that "Analytical thinking and creative thinking remain the most important skills for workers in 2023" [13].

In this context, for companies and individuals, having resources to understand how the economy and innovation function and valuing the culture of projects and systemic vision to solve problems appears to be crucial.

5.5 Attitude and self-awareness

iLABi aims to change both focus and attitude. We train individuals in embracing change, experimentation, the possibility of making mistakes, and growing, which are crucial aspects when seeking employment or changing companies. Among the main challenges when navigating the job market is one's attitude and personal perception while leading desired changes. A low confidence in the result can influence the whole process.

Most participants have acknowledged that they now have a set of tools to implement projects of social innovation, feeling more secure, confident, and stronger.

They recognize that their perspective has changed, and they discover potential projects in places they had not seen before. They also acknowledge that they have developed the ability to find a greater number of solutions or alternatives, recognizing themselves as more resourceful. We can say that many participants have undergone a change in attitude toward real challenges and limiting beliefs. It is also essential to highlight the attitudinal changes they feel they have acquired in problem-solving.

They recognize that they have learned to work in teams, valuing intergenerationality and group learning. The positive perception they have about the care within the process is noteworthy. They express that they have felt cared for, respected, recognized, and cherished during the process, both by the team and by the group, reiterating that this is something they had not experienced in other processes related to job searching.

The space that has been created has allowed them to build trust and feel that there was a safe environment to express themselves, seek help, and connect. Personal and professional lives sometimes cannot be separated. Individuals are whole beings, and the possibility of integrating emotions in this type of space, in a structured, controlled, and intentional manner, appears crucial.

- "It has been a very nice group, [...] a very friendly group ... if you didn't understand something, people would explain it to you with a lot of respect, they would help you without a problem, but I think it was mainly because there was something emotional." (Quote from participants)

It can be said that having a positive attitude when managing changes in personal and professional life is an important factor for healthy and satisfying transitions. Additionally, it is essential to highlight that a positive attitude can emerge from a context of respect, care, mutual support, and the security of feeling understood and integrated.

5.6 Teamwork and soft skills

Teamwork was one of the greatest challenges we encountered during the process. Most participants acknowledge having difficulty with teamwork, especially in managing horizontal relationships within the teams. In fact, participants were required not only to pay attention to content that was unfamiliar to many of them but also to be actively involved in their teams to carry out innovation projects, dealing with a lot of the differences in visions and behaviors. The fact that the target individuals were unemployed, sometimes for long periods, and sometimes with limited educational backgrounds, posed a significant challenge.

Furthermore, in any work and life setting, the ability to relate, have good communication skills, and build a strong network of contacts seems crucial for maintaining high employability and being active in the job market.

The manager of the Employment Agency highlights the value of shared talent and the importance of knowing individual's competencies, which requires a continuous and constant process of self-awareness, as a tool for improving not only professional life but also personal life. She emphasizes how teamwork teaches everyone what we are good at, and this knowledge can be perfectly extrapolated to the business world.

Team management should be a priority in these types of processes since continuous support and guidance are necessary, especially during different group dynamics. This aspect contributes to increasing employability and the development of transferable skills that may be needed in any environment.

5.7 Intergenerational approach and complementarity

We strive to create intergenerational teams to break down stereotypes based on age. Talent is ageless; however, we are still discriminated against based on our age, for being either "too old" or "too young." The possibility to work with people from a broad range of ages provides both emotional and professional benefits. Most participants highly value the selection process of participants, praising the "variety of profiles and ages" and recognizing it as an enriching element for the group. Throughout the development of the laboratory, special attention has been given to working on the "INTER" that is so crucial in intergenerational spaces.

Intentionally working on relationships has been a key aspect from the beginning. iLABi was designed to create spaces for connections beyond the objectives of project development. Besides the moments of rest that served as opportunities for bonding and were spent together, outdoor activities were organized, such as visits to job fairs where participants could showcase their projects, even if they were in their early stages, as well as other fun and festive activities. The complementariness of ages and professions helped to compensate for deficiencies in terms of content, comprehension, or communication. Having a life cycle approach that surpassed generational barriers allowed each person to find their place in the entrepreneurial journey. At the beginning of the sessions, basic and concise information about the intergenerational approach and the reasons for working with it were presented.

Especially in a longevity-focused society with diverse life cycles, varied needs, and objectives that differ significantly from the old ways of considering successful lives a century ago, having spaces for connection that value this diversity of perspectives and can manage it effectively can be a key to achieving greater levels of inclusion and creativity.

5.8 Open innovation and market knowledge

One of the characteristics of iLABi has been the intention to go beyond a simple training program for unemployed individuals and to become a tool serving the entire community. In this sense, the research conducted by teams was seen as an open innovation tool. On one hand, it allowed citizens and organizations to engage with the laboratory, and on the other hand, it provided participants with insights into the reality of the job market to make them aware of employment opportunities.

Throughout the process, there has been a focus on the capacity to imagine future scenarios without magnifying mental images of opportunities, but rather by staying grounded in the reality of each person's context and employability.

- "There have been challenging situations because some neighbors have very difficult situations, and they have opened up to us."

- "It has been very interesting to have peaceful conversations with some of the neighbors and give them time to express their needs and desires."

- "I was able to ask if some of the ideas I have for the project would be well-received in the neighborhood." (Quote from participants)

The possibility of having a space to test ideas or realize the direction in which the world is heading can be beneficial for rethinking one's own career path, even without changing jobs in the present. In this case, iLABi has functioned as a small laboratory for personal and community research.

5.9 Not to be alone

The possibility of diversifying risk within one's own service portfolio, the ability to put oneself into play, and looking for purpose in rescuing dormant talents are some of the keys to iLABi. The work during these weeks was very demanding, in terms of both theoretical content and practical involvement outside the classrooms by the participants. There have been many moments that required extra effort from both the coordination team and the participant teams. The diversity of profiles, understanding of the contents, and sometimes divergent life and professional objectives added complexity to the system.

At this point, the preparation, coordination, and alignment of the team have been crucial. The possibility of having a diverse team has also been relevant. It provided support and a quick way to resolve doubts, as well as direct contact with people who were already working where some of the iLABi participants may have wanted to move. This aspect of intergenerational collaboration has been central, based on intentionally crossing generations of knowledge that can bring out the best in each person and generation.

- "The level of content, direction of the Laboratory, and involvement of the participants is extremely high."

- "There is a great need for many more iLABi laboratories in Villaverde!"

- "Thank you very much for the effort behind this project."

- "iLABi is top-notch. These weeks have been fantastic. All the speakers are extraordinary communicators."

- "I want to add that the speakers are brilliantly chosen in my opinion. Total variety of profiles." (Quote from participants)

Feeling accompanied can represent a value when rediscovering talents and giving oneself permission to experiment with other roles and projects. It seems that the level of involvement of the coordination and facilitation team is essential for the success of these spaces (**Figure 4**).

5.10 The vision of community and communal values

Eastern philosophies clearly emphasize that the key to a person's happiness does not lie solely in the individualistic perspective prevalent in the West, but rather in the notion that a happy person can be more beneficial to the community.

Figure 4.
iLABi final celebration in Villaverde.

Currently, in this complex historical moment, we are experiencing, characterized by wars, health emergencies, earthquakes, fires, water scarcity, and so on, that there is a high perception of risk that is often associated with a perceived lack of resources. In this sense, the possibility of reconnecting resources and rebalancing territories seems to be relevant when looking for new relationships between individuals and organizations. Particularly in an aging society, where we have not only a growing number of older people but also an increasing number of young people who will live over a 100 years old, the understanding of community, community work, and systemic vision would need to be revisited.

- "... the most positive thing is the collective learning." (Quote from participants)

When considering generations within iLABi, it becomes evident that there is no competition for resources. Even if age differences were not so pronounced, the space for co-creation allowed moving beyond the traditional struggle or generational conflict, where young people are perceived as more creative and older individuals as either wise or not but, in any case, seemingly unable to be innovative. The

intergenerational approach precisely allows moving beyond the barriers of prejudice and considering that there is no competition but rather a need for collaboration and co-production. In societies where the generational pact seems weakened and where polarity in situations appears predominant, particularly in the world of work, it becomes relevant to work on the perspective of co-responsibility.

Sustainability is understood as a process rather than as a result. In this regard, having inclusive spaces that draw strength not so much from individuals but from the community can represent a value in strengthening public–private alliances and the socioeconomic fabric of neighborhoods.

6. Limitation and consideration

As we have introduced in the context, the idea of sharing this working model as a possible alternative to managing career transitions for all ages has assumed that people in aging societies will experience more laboral transitions. Beyond this starting context, the model has been analyzed to verify its feasibility not only for the reconfiguration of professional trajectories for unemployed individuals but also for managing life and career transitions in general. It is believed that such models, and hence the proposal, can provide value in different situations. For example, transitioning from one position to another within the same company or changing roles, even in different organizations, as well as exploring new professional alternatives more closely aligned with different talents and purposes that individuals may want to modify at a given time.

In order to apply this working model to other scenarios, the following limitations and considerations are shared:

Technological support: The experience has been piloted only twice. The technology we used, before pandemic situation, was not predominant. Digital learning support platforms were not available. Having a technological support platform could improve accessibility, content generation, and workload distribution.

Funding and accessibility: The iLABi has been funded by the local public administration. If the experience were to be scaled up, it would be necessary to verify who and how it could be funded. It is not clear if all workers could afford additional expenses, especially those who are unemployed without public funding. It remains to be seen if the private sector would be willing to invest money in these spaces, either to support selection processes, accompany disengagement processes, or serve as a tool for open innovation to solve business challenges.

Work–life balance: The level of demand in terms of time spent both inside and outside the classrooms is quite high. It is not clear whether individuals, especially those who have to care for children or older parents, can afford to invest time in studying and researching new career paths.

Content: One of the key aspects related to the iLABi's educational content has been focusing on sharing value related to innovation, economy, sustainability, human-centered design, and so on. Perhaps specific spaces could be designed and planned for specific sectors, although the experience suggests that the richness of these spaces lies in the diversity of professionals and profiles. It remains to be verified if this experience is adaptable to more specific sectors by introducing specific training modules.

Emotional volume, rescue zones, and self-awareness: This aspect seems very relevant speaking about team management and the interdependence of the people. At the

individual level, it has been observed that a more precise focus on personal issues would have been necessary. This aspect may have been relevant due to the specificity of the target audience, unemployed people sometimes facing long-term unemployment, and it has been crucial to manage the project on time. It remains to be verified and expanded upon in terms of addressing personal emotional needs.

Context and projects: Some participants recognize the difficulty of implementing social innovation projects in districts like Villaverde or Vallecas due to their social reality, where a significant portion of the population does not have their basic needs covered. In this regard, the context seems relevant when implementing these types of spaces and projects.

Diversity: Participants with disabilities were not included in the selection, and accessible communications for non-sighted, non-hearing, or cognitively diverse groups could not be carried out. This is an aspect that needs to be included. Modifications in design and development processes may need to be made to be more inclusive.

> *"A majority of companies will prioritize women (79%), youth under 25 (68%) and those with disabilities (51%) as part of their DEI programmes. A minority will prioritize those from a disadvantaged religious, ethnic or racial background (39%), workers over age 55 (36%), those who identify as LGBTQI+ (35%) and those from a low-income background (33%)."* World Economic Forum [13]

Ages and generations: Despite paying special attention to generational diversity, the truth is that in both versions of iLABi, young people were not attracted to participate. The youngest participant was 19 years old, and the oldest was 63, but the majority of participants were between 30 and 50 years old. Moreover, an intergenerational planning could not be achieved in the sense that people and generations were not integrated into the design of the proposal as demanded by the intergenerational methodological approach. This aspect remains to be explored.

Training: This article intentionally is not focused on the difference between a person who is an actively seeker for better opportunities and another person in a completely different situation who is outside the labor market, unemployed, and looking to re-enter. In the first case, there may be a need for training to adjust or update skills if one is seeking a change in position, role, or sector. In the second case, training may also be required, especially considering the length of time a person has been out of the workforce. In both cases, it seems that transitioning to a new job may requires training spaces. However, it remains to be explored whether it is feasible to mix different types of profiles. From this proposal, we believe that it would be viable and desirable, but solutions would need to be found so that all individuals feel they have a place in the same space.

7. Conclusions

In the future, labor changes and transitions are likely to increase. Considering the extended lifespan and the possibility of living up to 120 years, individuals will need to reconfigure their life and career paths.

Currently, there is a lack of spaces to investigate and explore alternative opportunities because financial, time, and spatial constraints leave us with limited options.

Agility, flexibility, effective communication, and critical thinking are highly demanded characteristics in companies and the job market in general. However, these capacities are not always effectively trained in traditional educational paths, both in companies and outside of them.

The quality of relationships, networking, having spaces for listening, contrasting ideas, and dialog also seem crucial for continued development in dynamic environments. Since many job opportunities are not advertised on job portals but rather arise through personal contacts and relationships, the challenge is to nurture trustworthy connections.

In the workplace, specialization is often rewarded, leading to very specific tasks and limited opportunities for individuals to have a systemic and global vision of the projects they contribute to. Practical training, as proposed, offers a broader, more interconnected, and multi-sectoral perspective.

Our society does not facilitate professional reinvention, especially at older ages. Specialization throughout one's career makes it difficult to change sectors promptly.

Age appears to matter, as reflected in the data related to the number of years people stay in the same job. Younger individuals tend to change jobs more frequently, while older adults tend to remain in the same position for longer.

When a person is excluded from the job market and is older, the difficulties seem to multiply, particularly due to age discrimination. The challenge, in this case, is to remain employable, as reinsertion becomes more challenging than transitioning.

Intergenerationality is key to valuing learning and innovation opportunities in these spaces. Apart from benefiting from generations with different experiences and knowledge, the diversity of life cycles can be inspiring when planning for a long life.

Those are the main reasons, including the need for further analysis as presented in the considerations and limitations section; this article proposes that individuals and society dedicate time to design spaces for experimentation, research, and evaluation. This will make transitioning between jobs and life scenarios more accessible, healthier, and more enriching.

Ultimately, if we are going to live for more than 100 years, promoting rotations and transitions, beyond what is necessary, becomes beneficial. Changes keep us alive, youthful, and connected to our life purpose and benefit companies and consequently the job market. Collaboration emerges from diverse and intergenerational spaces, leading to effective sharing of responsibility for sustainable projects and communities in the long term.

It seems that if we were to consider implementing more hybrid spaces—public-private, intergenerational, spaces for both learning and action, professional and personal growth, experimentation, and exploration—many of present's challenges could find more efficient, effective, and sustainable solutions.

Acknowledgements

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Chapter 7

Bridging the Gap: Understanding and Fostering Intergenerational Communication in the Digital Age

Roy Rillera Marzo

Abstract

This chapter delves into the promotion of digital literacy and the challenge of bridging the intergenerational digital divide in our tech-driven age. Digital literacy, extending beyond technological skill, encompasses ethical considerations and digital citizenship, crucial for participation in today's digital society. While various global initiatives, like Singapore's Silver Infocomm Initiative and the European Commission's Digital Skills and Jobs Coalition, strive to foster digital literacy across generations, family plays a central role in intergenerational learning. The significance of formal education in equipping digital natives is underscored, suggesting an integration of digital literacy into curricula and innovative teaching methods. The chapter scrutinizes the influence of societal norms and policies on technology acceptance and utilization. Upcoming trends, including the growing digital participation of the elderly and breakthroughs in VR, AR, MR, AI, and IoT, are discussed. However, potential pitfalls like widening digital disparities in marginalized communities and issues of privacy and ethics are acknowledged. The chapter concludes with insights into the present landscape of intergenerational digital communication, stressing the imperative of continuous efforts, through education, policy, and community engagement, to make technology a tool for empowerment and inclusivity.

Keywords: digital literacy, intergenerational communication, digital divide, artificial intelligence, virtual and augmented reality, Internet of Things, lifelong learning, family engagement

1. Introduction

The generational gap, often referred to as the generation gap, signifies the differences in experiences, attitudes, and behaviors among different generations. This phenomenon not only impacts familial relationships but also deeply influences the workplace and broader societal interactions [1].

A foundational understanding of this gap requires an exploration of the unique characteristics that define each generation. Scholars, over time, have segmented individuals based on their birth years, resulting in categories such as the silent generation, baby boomers, generation X, millennials, and generation Z [2]. The sociocultural, economic, and technological landscapes that each generation has grown up in have

greatly influenced their worldviews and behaviors. For instance, while baby boomers grew up during a period marked by remarkable economic growth and societal shifts, the millennial experience is largely characterized by the rise and ubiquity of the internet and digital technology [3].

A notable manifestation of the generational gap is the intergenerational communication difference. The varied communication styles, perceptions of societal norms, and unique generational expectations contribute to this distinction. Older generations, having grown up in a pre-digital age, often exhibit a preference for face-to-face or written communication. The younger cohorts, immersed in the digital age since their formative years, lean toward electronic forms of communication. This divergence in communication styles can sometimes result in misinterpretations and misunderstandings [4].

Further amplifying these differences is the rapid evolution of technology. In just a few decades, technological strides have reshaped the way we communicate, interact, and perceive the world. This transformation has led to the widening of the generational gap. The younger generations, having been exposed to technology throughout their lives, navigate the digital realm seamlessly, whereas older generations often find the digital terrain somewhat more challenging [5, 6].

To delve deeper into this realm and offer insights into the complexities of intergenerational digital communication, this study has set forth specific research questions and hypotheses:

Research questions:

1. **RQ1:** How have the digital habits and preferences of different generations evolved over the last decade?

2. **RQ2:** What barriers currently impede effective intergenerational digital communication?

3. **RQ3:** What strategies and interventions have proven effective in bridging the intergenerational digital divide?

4. **RQ4:** How do families, education systems, and society at large influence the state of intergenerational digital communication?

5. **RQ5:** What are the future trends shaping the landscape of intergenerational digital communication?

Hypotheses:

1. **H1:** Younger generations, having grown up in the digital age, exhibit a higher proficiency and comfort level with digital technologies compared to older generations.

2. **H2:** Generational stereotypes contribute significantly to miscommunication and misunderstandings in the digital realm.

3. **H3:** Interventions promoting mutual learning and empathy are effective in improving intergenerational digital communication.

4. **H4:** Families play a pivotal role in fostering digital literacy across generations.

5. **H5:** The integration of emerging technologies, such as artificial intelligence (AI) and virtual reality (VR), will redefine intergenerational digital interactions in the coming decade.

Guided by this background, the primary objectives of this study are to investigate the influence of technological advancements on intergenerational communication, examine the generational gap's ramifications in workplace settings, and evaluate potential strategies that could bridge the communication disparities. This research holds importance as it aims to promote enhanced understanding and collaboration across different generational divides, especially within the professional arena.

2. Conceptual framework

For the older adults, the cycle begins with the physical challenges that often accompany aging, such as reduced mobility and health complications. These challenges frequently lead to emotional isolation, particularly when compounded by an aversion or lack of access to digital technology, which is increasingly central to social interaction today. This cycle of physical and emotional isolation perpetuates a feeling of disconnection and vulnerability among the older adults, limiting their engagement with younger generations.

Concurrently, young people are experiencing their own cycle of weakness rooted in emotional limitations and a state of relative inexperience. While they may be adept at using digital technology, their dependence on it often interferes with time spent on interpersonal communications, especially with older, more experienced individuals. This undermines their ability to develop essential social intelligence skills, thereby perpetuating their cycle of weakness.

The confluence of these cycles creates a relational gap between the older adults and the youth, manifesting as a lack of understanding and meaningful interaction between the two groups. Your project aims to bridge this gap through targeted encounters that foster both social support for the older adults and social intelligence in the youth. These encounters are designed to break the cycles of weakness and to create a positive feedback loop; as social support for the older adults and social intelligence in the young increase, it is expected to generate momentum toward future encounters. Over
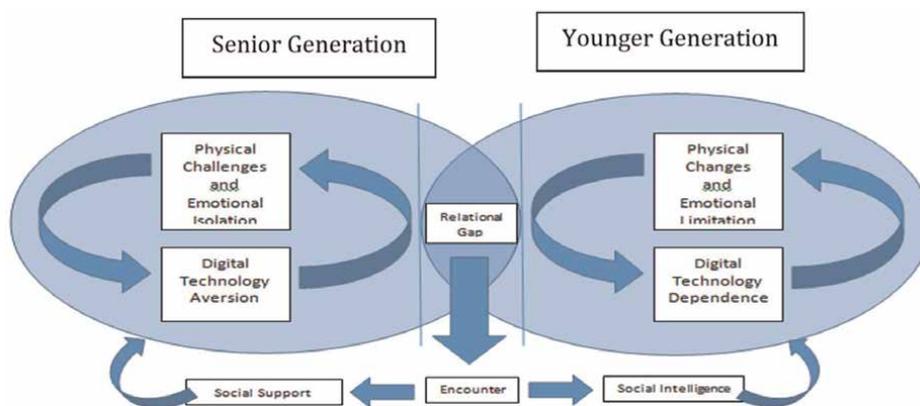
Figure 1.
Social integration model for the older adults-youth project of St. Paul University Manila.

time, this has the potential not only to lessen the relational gap but also to sustain social support and enhance social intelligence, thereby enriching the lives of both the older adults and the young.

This process is represented in the model shown in **Figure 1**.

3. Methodological approach

To ensure a comprehensive understanding of the generational gap and its implications, this research employs a mixed-method approach. While the foundation is laid upon an extensive literature review, selected case studies have been incorporated to provide real-world context and deepen the insights.

3.1 Literature review process

3.1.1 Data sources

The primary sources for our literature review include academic databases such as JSTOR, Google Scholar, and PubMed. These platforms were chosen due to their extensive coverage of peer-reviewed articles, journals, and studies pertinent to our research questions.

3.1.2 Search criteria

Articles were shortlisted based on keywords and phrases such as "generational gap," "intergenerational communication," "technology and generational differences," "workplace dynamics across generations," and "bridging communication gaps." Any literature published between 1990 and 2023 was considered to ensure the incorporation of historical context and recent developments.

3.1.3 Selection criteria

From the initial search results, articles were further filtered based on their relevance to our research questions, the credibility of the sources, and the depth of the study. Any literature that provided unique insights or divergent perspectives was prioritized.

3.2 Selection and justification of case studies

3.2.1 Purpose of case studies

Case studies were incorporated to provide a tangible understanding of the generational gap and its real-world implications. These studies offer deeper insights, highlighting both challenges and potential solutions in bridging generational differences.

3.2.2 Criteria for selection

Case studies were chosen based on their relevance to our research questions, the diversity of the scenarios they presented (e.g., different industries, cultural contexts, or technological scenarios), and their depth of analysis.

3.2.3 Source of case studies

Selected case studies have been sourced from reputable business journals, industry reports, and academic publications, ensuring their credibility and relevance.

3.3 Assessment of methodological sufficiency

Given the extensive nature of our literature review and the deliberate selection of diverse case studies, we believe that our methods are robust enough to address the research questions. The literature provides the theoretical foundation, while the case studies offer practical insights, making for a comprehensive approach to the research.

3.4 Limitations

While our methods have been designed for thoroughness, there are inherent limitations. The dynamic nature of technology and societal behaviors implies that the generational gap is continuously evolving. Moreover, case studies, by their nature, offer specific scenarios that might not be universally applicable. However, by combining a wide range of literature with diverse case studies, we aim to provide a holistic view of the topic at hand.

4. Digital landscape: unraveling its impact on intergenerational communication

Over the last several decades, the digital landscape has significantly morphed, influencing both the channels and methods by which various generations communicate. As the virtual world continues to grow and change, distinct generational experiences with these transformations lead to both convergences and divergences in communicative styles and preferences.

4.1 The renaissance of digital interaction: from text to multimedia

In the late twentieth century, the dawn of the digital era was characterized by text-based communication tools, notably emails and chat rooms. This form of communication, while groundbreaking at the time, was primarily linear and lacked the dynamic capabilities, and we associate with modern communication. As we ventured into the twenty-first century, the world witnessed an unprecedented surge in the sophistication of digital platforms. Social media platforms, video conferencing tools, and blogging sites began to emerge, enabling people to convey emotions, beliefs, and ideas beyond mere text. The infusion of multimedia, from images to videos, allowed for a richer, more immersive interaction experience [7]. Concurrently, the shift from stationary desktops to the mobile-centric paradigm of smartphones and tablets reshaped expectations. The portability of communication means that people can engage anytime and anywhere, leading to the "always-on" culture that influences social and professional interactions alike [8].

4.2 Social media's dual edge: catalyzing connections and widening gaps

The ascendancy of social media platforms reshaped communication dynamics. Platforms, such as Facebook, Twitter, and TikTok, became integral to personal and professional lives, serving multiple roles: from being a news source to a space for personal expression. For the younger generation, adept in the digital sphere from childhood,

these platforms became second nature, facilitating instantaneous communication characterized by brevity and multimedia [9]. Conversely, the older generations, whose communication foundations were built on more traditional, slower-paced mediums, sometimes find it challenging to keep pace with the torrent of information and the rapid-fire mode of exchange on social media. This divergence creates potential for misunderstandings and feelings of exclusion or overwhelm among the older cohorts.

4.3 Navigating the digital divide: access, skills, and generational impediments

The term "digital divide" initially highlighted the disparity in access to digital technologies. As time progressed, this definition evolved to cover not only access but also the capability to effectively utilize these tools. This divide is starkly evident when analyzing intergenerational dynamics. Older adults, many of whom had their first encounters with the digital world in their later years, face a steeper learning curve. It is not just the technical aspect that poses challenges, the intricate, unwritten rules, and norms of digital etiquette further complicate matters [10, 11]. For instance, the meaning behind specific emojis, the etiquette of "liking" or "sharing" posts, or the nuances of online privacy can be sources of confusion. As such, addressing this digital divide is critical not just for cohesive communication but also to ensure inclusivity in the rapidly digitizing world.

5. Unraveling the challenges of digital intergenerational misunderstandings

The intricate fabric of digital-era communication is woven with threads of generational variances. These can lead not only to vibrant exchanges but also have the potential to cause friction when interactions are marred by misconceptions or a lack of understanding of the evolving digital landscape.

5.1 The trap of generational stereotypes in online interactions

Generational stereotypes cast long shadows over digital interactions. Youth are often viewed as digital prodigies, navigating online spaces with ease but at times over-relying on them. Conversely, older individuals can be unjustly categorized as technologically inept or resistant to the digital wave. Such biases can lead to:

- **Expectation mismatches**: Younger individuals might expect immediate responses to digital interactions, considering the older generation's slower response time as disinterest.

- **Communication breakdown**: Older generations might perceive the youth's penchant for brief, emoji-laden messages as a lack of depth or sincerity.

Acknowledging the inherent diversity within each generation regarding digital adoption and utilization is crucial. It helps move beyond stereotypes and promotes understanding, which is the cornerstone of effective communication [12].

5.2 The uneven landscape of digital literacy and its implications

Digital literacy is a multifaceted skill, extending beyond device operation to understanding the intricacies of online spaces:

- **Digital etiquette**: The rules of engagement online might be perplexing for some. For instance, while double-texting might be acceptable amongst younger people, it might be seen as intrusive or impatient by older folks.

- **Privacy and security**: Older generations, unfamiliar with privacy settings, might unknowingly share sensitive information, while younger ones might be overly open, disregarding potential risks.

The rift, in understanding and implementing digital literacy between generations, can lead to miscommunications and even security vulnerabilities. It underscores the need for continuous education, ensuring that all age groups are well-equipped to navigate the digital realm responsibly [13].

5.3 Navigating the nuances: digital miscommunications and their roots

The realm of digital communication, stripped of many in-person cues, becomes an arena, where misunderstandings can thrive. The frequent evolution of online language adds another layer:

- **Evolving digital lexicon**: The rapid introduction and adaptation of internet slang or emojis can lead to confusion. An emoji that a Gen Z individual uses might have a completely different interpretation for a baby boomer.

- **Interpreting silence**: While younger generations might constantly check and update their online profiles, older ones might do so sporadically, leading to perceived disinterest or neglect.

Recognizing and understanding these potential pitfalls are paramount. Open dialogues, workshops, or even family tech time, where generations share and learn from each other's digital experiences, can be instrumental in bridging these gaps and ensuring more harmonious interactions [14].

6. Strategies for bridging the intergenerational gap

The digital generational gap is a significant issue that impacts communication across generations. As societies become more digitally integrated, it becomes more imperative to develop strategies that can help bridge this gap, promoting better understanding and interaction between different generations. These strategies must be informed by understanding the unique needs and perspectives of each generation and leveraging technology's capabilities to facilitate effective communication.

6.1 Developing empathy and understanding

Empathy and understanding serve as the bedrock of any successful communication strategy. They involve appreciating the diverse experiences, attitudes, and perspectives each generation brings to the digital world. Educational initiatives can help foster empathy between generations. For example, initiatives, such as intergenerational learning programs, can promote mutual understanding by providing shared learning experiences. Here, younger generations can guide older adults in navigating the digital world, while

older adults can share their wisdom and life experiences. Such programs have been found to have a positive effect on the perception and understanding between different age groups [15]. More formally, communication skills training can incorporate a focus on intergenerational empathy, instructing individuals on how to interpret and appreciate the digital behaviors of different age groups. By emphasizing active listening and perspective-taking, such training can enhance mutual understanding and help overcome age-related stereotypes [16].

6.2 Leveraging technology to improve communication

Technological solutions can also play a significant role in bridging the digital generational gap. Given the variety of available digital communication tools, selecting the appropriate medium can enhance intergenerational communication. For instance, older adults may prefer email or voice calls, while younger generations often lean toward social media or instant messaging [17]. Recognizing and respecting these preferences can significantly improve communication effectiveness.

In addition, digital platforms and tools can be developed or modified with a universal design principle in mind, making them accessible and user-friendly for all age groups. For instance, interfaces could be made more intuitive, help resources more readily available, and privacy settings clearer. This can help older adults feel more confident and comfortable in using digital tools, thereby encouraging their participation in the digital conversation [18].

6.3 Case studies of successful digital intergenerational communication

Techy Tea Parties (Telefonica UK):
Telefonica UK's Techy Tea Parties, which started in 2012, began as a one-off event to commemorate the International Older People's Day. Still, its impact led to the initiative becoming a permanent fixture in the company's calendar. The aim of the program was to teach the older generation about technology from sending emails and surfing the internet to using smartphones and tablets.

During these events, the company's stores were transformed into "learning hubs," where people could come in and ask questions related to digital technology. Younger employees volunteered their time and knowledge to help the attendees navigate the digital landscape. The initiative has been extraordinarily successful; Telefonica UK held more than 300 Techy Tea Parties and reached more than 5,000 people in the first 3 years alone [19].

The Techy Tea Parties initiative is an excellent example of how organizations can leverage their resources to foster digital intergenerational communication. It demonstrates the power of informal hands-on learning in a friendly and supportive environment.

Grandparents Gone Wired (DoSomething.org and AARP):
The Grandparents Gone Wired campaign, launched in 2011, adopted an innovative approach to enhancing digital literacy among older adults. Recognizing the existing bond between grandparents and their grandchildren, the campaign encouraged young people to spend time during the holiday season teaching their grandparents or older adults relatives how to use various digital technologies.

The initiative was immensely successful in fostering digital intergenerational communication. An evaluation of the campaign found that more than 80% of participating seniors reported feeling more comfortable with technology, while 70% reported

feeling closer to their grandchildren after participating in the campaign. The campaign has, thus, served as a powerful testament to the role familial relationships can play in overcoming the digital generational gap [20].

Cyber-seniors program:

The cyber-seniors program, launched in 2015, pairs seniors with tech-savvy teen-agers who guide them through the digital world and educate them about potential online risks. The program operates through a peer-to-peer learning model, with teens serving as digital mentors to seniors.

One of the major successes of the program has been the transformation of the digital anxiety that many seniors feel into a sense of digital empowerment. This shift has been primarily due to the empathetic, patient, and customized approach adopted by the young mentors. The program also promotes mutual understanding and respect, helping to challenge stereotypes on both sides [21].

The success of these initiatives demonstrates the potential impact of strategically designed and empathetically implemented intergenerational digital literacy programs. Such programs not only enhance digital literacy among the older generation but also foster more profound and more meaningful intergenerational relationships.

Asia too has seen successful initiatives for bridging the digital generation gap. Let's take a look such initiatives:

SG:D Seniors Go Digital Programe (Singapore)

In Singapore, the Infocomm Media Development Authority (IMDA) launched the SG:D Seniors Go Digital program in 2020 with the goal of empowering seniors to become digitally ready [22]. The program's strategy is holistic, providing affordable smartphones and data plans, personalized assistance for digital learning, and outreach to seniors in their homes and community centers.

Under the Seniors Go Digital program, digital learning circles were created where young volunteers, often students, assist seniors in acquiring digital skills. This not only equips the seniors with knowledge but also fosters intergenerational understanding and bonding [22].

The program has seen remarkable results. By 2021, more than 33,000 seniors have attended learning circle sessions, and more than 13,000 seniors have adopted new digital tools and services. This has not only improved the digital readiness of the senior population but also fostered a sense of unity and mutual understanding between the generations.

Project AGE (Assist, Grow, and Empower)—Philippines:

In the Philippines, one notable initiative is Project AGE (Assist, Grow, and Empower), led by the Department of Science and Technology (DOST) and Information and Communications Technology Office (ICTO). This initiative was established in 2016 and aimed to address the digital divide among senior citi-zens [23].

Project AGE employs a multifaceted approach to empower the older adults with digital skills. The initiative sets up community-based e-centers and uses younger volunteers to provide technology training to older adults. This intergenerational setup fosters a sense of understanding, empathy, and cooperation between the younger and older generations, which is essential for effective communication [23]. One primary component of Project AGE is the "Tech4ED" project. This initiative leverages technology to enhance education, skills development, employment, and entrepreneurship among seniors.

Tech4ED centers serve as an inclusive, accessible, and shared platform for learning, where young volunteers mentor and guide the older adults in digital literacy [23].

The outcome of Project AGE has been promising. The initiative has helped thousands of seniors to acquire digital skills and interact effectively with younger generations. This has not only mitigated the impact of the digital divide but also improved intergenerational communication and understanding.

Further, the project's success has prompted other Southeast Asian countries to explore similar initiatives to bridge the generational digital divide and foster better communication among different age groups.

The e-Penawar project (MCMC, Malaysia):

The e-Penawar project, a pivotal initiative by the Malaysian Communications and Multimedia Commission (MCMC), epitomizes Malaysia's concerted efforts to bridge the digital generation gap. The initiative, launched in 2017, was not just a program but a comprehensive strategy focusing on the inclusivity of senior citizens in the digital revolution [24].

MCMC partnered with local community centers, NGOs, and youth volunteers to facilitate the initiative. The design of e-Penawar strategically allowed intergenerational learning, with young, tech-savvy volunteers stepping in as mentors. This dual-pronged approach not only helped the older adults gain digital skills but also fostered better communication and understanding between the generations [24].

The results of the e-Penawar project have been extremely encouraging. By the end of 2019, the project had trained over 20,000 senior citizens, marking a significant enhancement in digital literacy among the older adults. Furthermore, anecdotal evidence suggested increased intergenerational dialogue and bonding due to the mentorship role taken by the younger generation [24].

Elder Academy (HKCSS, Hong Kong):

Hong Kong Council of Social Service's (HKCSS) Elder Academy project stands as a testament to Hong Kong's effort to integrate the older adults into the digital landscape. Since its initiation in 2007, the Elder Academy has worked tirelessly to provide a conducive learning environment for older adults, promoting digital inclusion and intergenerational interaction [25].

The project's methodology involves organizing educational and interactive sessions, where young volunteers guide seniors on various digital technologies. These technologies range from the basic functions of digital devices to internet browsing and social media platforms, thus covering a broad spectrum of digital skills. The interaction between generations during these sessions fosters both the learning process and the breaking down of stereotypical barriers between the old and young [26].

The Elder Academy has had a profound impact on Hong Kong society, with thousands of seniors improving their digital skills and building better relationships with the younger generation. The success of the Elder Academy demonstrates the critical role of collective societal effort in bridging the digital generation gap.

7. Empowering generations in the digital age

The advent of the digital age has reshaped the way we live, communicate, and work. As technology continues to evolve at an unprecedented pace, there is a growing need for individuals across generations to be digitally literate. Empowering them means more than just handing them a device, it means cultivating a mindset that is

receptive to continuous learning and fostering an atmosphere of collaboration across age groups.

7.1 Encouraging digital literacy across ages

Understanding the depth of digital literacy: The term "digital literacy" might conjure images of merely browsing the internet or using social media. However, in its full spectrum, it encompasses a broad range of competencies. Bawden [27] and Birnholtz [28] illustrates that it is not just about accessing information but managing and sharing it effectively. Furthermore, as Hague and Payton [29] and Hargittai [30] emphasize, it is crucial to understand the ethical dimensions and potential pitfalls associated with our digital interactions.

Government-led initiatives:

- **Singapore's pioneering approach**: Recognizing the risk of a digital divide, especially among the older adults, Singapore introduced the silver infocomm initiative. Beyond just creating awareness, the initiative offers tailored IT classes ranging from foundational lessons to contemporary topics, such as social media and digital payments. Such programs are imperative to ensure that seniors, often the most susceptible to digital exclusion, remain engaged and empowered [31].

Role of education:

- **Digital literacy in schools**: As Livingstone [32] and Manovich [33] rightly points out, schools play an indispensable role. From an early age, children should not only be familiarized with digital tools but also be taught the broader implications of their online presence. This means understanding privacy, discerning credible sources, and appreciating the permanence of online actions.

- **Australia's proactive measures**: The eSafety Commissioner's program in Australia embodies a comprehensive approach. It does not only arm students with knowledge but ensures that educators are well-equipped to guide them. This program serves as a blueprint, illustrating that digital education is as much about proactive prevention (like recognizing cyberbullying signs) as it is about reactive measures (like seeking help) [34].

Adult education and the workplace:

- **Never too late to learn**: Digital literacy is not just a young person's domain. Adults, whether re-entering the workforce or adapting to new workplace technologies, need to be digitally adept. This extends beyond mastery of specific tools and includes understanding the digital landscape from data privacy issues to the nuances of digital communication.

- **European commission's holistic vision**: The digital skills and jobs coalition by the European Commission is a testament to the importance of a combined effort. This coalition aims to galvanize member states, businesses, and community stakeholders to bridge the digital skills chasm. By focusing on varied aspects like retraining, fostering digital entrepreneurship, and adapting to digital transitions, the coalition underscores the multifaceted nature of digital literacy [35].

7.2 The role of family, education, and society in bridging the gap

The journey toward an interconnected digital society requires the cohesive effort of multiple pillars: families, educational establishments, and broader societal institutions. Together, they form a network of support, ensuring that every generation is not just familiar with the digital landscape but is confident and competent in navigating it.

The vital role of families:

- **Interconnected learning dynamics**: The beauty of the family unit lies in its inherent dynamic of reciprocal learning. While older generations impart wisdom and life experiences, they often turn to the younger generation to guide them through the digital maze. This setup promotes an organic learning environment, where digital tools are demystified through hands-on experience and shared exploration [36, 37].

- **Building emotional resilience**: Navigating the digital space is n0t just about technical acumen. It is about understanding the emotional and psychological repercussions of our digital interactions. Families play a pivotal role here, providing a safe space to discuss issues such as cyberbullying, digital fatigue, or privacy concerns.

Education: The bedrock of digital proficiency:

- **Integrative curriculum approaches**: As the digital landscape evolves, so too must educational curricula. Schools are not just teaching how to use tools but are instilling a broader understanding of digital ethics, safety, and responsibility. The approach by Finland's National Agency for Education exemplifies this holistic vision, incorporating digital literacy into broader life competencies [38].

- **Lifelong learning**: Digital education is not confined to early schooling. With technology ever-evolving, adults and seniors too need avenues to update their skills. Here, community-driven initiatives play a crucial role. Through workshops, seminars, and courses, community centers and libraries are emerging as vital hubs for continuous digital learning.

Societal structures and digital evolution:

- **Media's influence**: Media, with its wide reach, plays a significant role in shaping digital perceptions. From promoting responsible digital behavior to highlighting the risks of excessive screen time, media narratives influence societal attitudes toward technology.

- **Organizations and Policy Interplay**: Community organizations serve as connectors, bridging the digital divide by organizing awareness campaigns, tech boot camps, or digital fests. At a macro level, policies such as the European Commission's Digital Education Action Plan demonstrate a strategic approach, guiding member states in embedding digital literacy within broader educational objectives [39].

7.3 Future trends in intergenerational digital communication

As digital technologies proliferate and become ever more integral to our lives, their role in intergenerational communication is set to become even more pronounced. Here, we will delve deeper into the future trends that are poised to reshape the landscape of intergenerational communication.

Evolving digital landscape for older adults:

- **Seamless integration**: Technology is no longer a mere luxury or novelty; it is becoming an essential facet of daily life. With the simplification of user interfaces and the availability of various accessibility features, digital platforms are increasingly accommodating the needs of older adults. It is no longer a surprise to find grandparents shopping online or using telehealth platforms, exemplifying the breaking of digital barriers [40].

The virtual realm: Bridging physical distances:

- **Beyond traditional communication**: The rise of VR, augmented reality (AR), and mixed reality (MR) signifies more than just technological advancements. They represent opportunities to redefine interactions. Imagine grandparents virtually attending a grandchild's graduation or families exploring digital worlds together. Such technologies are poised to offer rich immersive experiences that bridge generational and geographical gaps [41].

The power of AI in mediating communication:

- **Generational translators**: While AI's vast capabilities are known, its potential as a mediator between generations is a promising domain. As communication styles evolve, there is a risk of misinterpretation and disconnect between generations. AI tools, powered by deep learning algorithms, could decipher these nuances, acting as "generational translators" to foster clearer communication [42].

IoT and the dawn of smart living:

- **Empowerment through connectivity**: The essence of Internet of Things (IoT) lies in connectivity and automation. For older adults, this means smart devices that anticipate needs, automated homes adjusting to their preferences, and wearable tech monitoring their health. This seamless digital integration could revolutionize eldercare, ensuring safety while promoting independence [43].

The underlying challenges of the digital era:

- **Addressing the digital divide**: As with any advancement, there is the risk of leaving some individuals behind. Economic disparities might lead to a scenario, where some have access to the latest technologies, while others do not. Addressing this requires concerted efforts from governments, NGOs, and tech companies to make digital inclusion a priority.

- **Safety in the digital age**: With increasing online interactions come risks— cybersecurity threats, privacy breaches, or the menace of misinformation.

Creating a safe digital space, especially for older adults who might be more susceptible to scams or misinformation, is paramount. Continuous digital education and robust cybersecurity measures are essential to navigate these challenges [44].

8. Conclusion and future directions

8.1 Reflections on the state of intergenerational digital communication

Reflecting on the state of intergenerational digital communication, it becomes evident that while progress has been made in understanding and addressing the digital divide, significant challenges remain.

The digital landscape has transformed how different generations communicate. For the younger generation, technology is an innate part of their lives, and they navigate the digital space intuitively. For older generations, however, the rapid pace of technological advancement can be intimidating and alienating. Yet, many older adults have shown resilience and adaptability in adopting digital technologies [10].

Indeed, the state of intergenerational digital communication is diverse. We see a spectrum of experiences: from digitally disconnected older adults who face social exclusion to digitally savvy seniors who regularly use technology for various activities. There are also families and communities, where digital literacy and engagement span across all ages, bridging the intergenerational divide.

There are barriers that impede effective intergenerational communication in the digital age. These include generational stereotypes, digital literacy challenges, and misunderstandings and miscommunications in the digital realm. The impact of these barriers is significant, potentially leading to social exclusion, a lack of understanding, and strained relationships between generations.

Despite these challenges, there are also promising strategies and initiatives aimed at bridging the intergenerational digital divide. These strategies focus on fostering empathy and understanding, leveraging technology to improve communication, and empowering all generations to become active participants in the digital age. Encouraging digital literacy, creating supportive learning environments, and facilitating knowledge exchange between generations are key steps in fostering effective intergenerational digital communication.

The role of families, education, and society is pivotal in this endeavor. Families can foster environments of mutual learning, where younger generations can impart their digital skills to older generations. The educational system can integrate digital literacy into curricula and promote lifelong learning. Society, through community organizations and public policies, can provide the necessary infrastructure and support systems to ensure inclusive and accessible digital environments for all generations.

The efforts to bridge the intergenerational digital divide are not isolated instances but part of a broader trend toward digital inclusion and empowerment. There are promising developments on the horizon that could further shape the future of intergenerational digital communication. These include the increasing adoption of digital technologies by older adults, the emergence of new forms of intergenerational interaction through AR, VR, and MR technologies, the potential of AI and machine learning to enhance communication, and the increasing pervasiveness of the IoT.

In this complex digital landscape, the necessity of fostering effective intergenerational communication is more pressing than ever. By understanding and

addressing the barriers to intergenerational digital communication, we can pave the way toward a digitally inclusive society where everyone can reap the benefits of technological advancement.

8.2 Predictions and hopes for the future

As we reflect on the current state of intergenerational digital communication, we can also predict what the future may hold. Emerging technologies and societal changes can both shape and be shaped by intergenerational digital communication.

The integration of AI in everyday technologies is expected to increase. As AI becomes more sophisticated and accessible, we can anticipate its greater application in bridging the digital divide. Machine learning algorithms can help customize and adapt technologies to the specific needs and preferences of different age groups, fostering a more inclusive digital landscape [45].

Virtual and AR technologies are poised to redefine intergenerational communication. They could provide a shared virtual space, where different generations can interact, learn, and bond regardless of their physical location [41]. With further advancements, these technologies can create immersive and interactive experiences that bridge the gap between the digital and physical worlds.

In the realm of the IoT, we can expect to see more smart devices tailored to the needs of older adults. From wearable devices that monitor health parameters to smart homes that assist in daily activities, IoT can enhance the quality of life for older adults and foster their digital engagement [43].

Moreover, we can anticipate a shift in societal attitudes toward digital literacy. With the understanding that digital literacy is a crucial skill in the modern world, there may be more emphasis on lifelong learning and inclusivity. We can hope for policies that prioritize digital literacy and accessibility, thus reducing the digital divide.

However, these predictions also come with challenges. Ensuring privacy and security in an increasingly interconnected world will become even more critical. There will be a need for robust policies and regulations to protect users' rights and ensure ethical use of technology.

Looking to the future, our hope is for a digitally inclusive society where technology serves as a bridge rather than a barrier between generations. This vision is not only merely an aspiration but also a goal that we can strive toward with continued effort, innovation, and collaboration.

8.3 Continuing efforts in bridging the digital intergenerational gap

The journey toward bridging the intergenerational digital divide is ongoing. To ensure progress, it is vital that this issue remains at the forefront of our societal, educational, and policy initiatives. Efforts to narrow the gap need to be multifaceted and continual, reflecting the complexity of the digital divide and its impact on different generations.

Education will continue to play a crucial role in these efforts. As shown by Helsper and Eynon [46], improving digital skills across all age groups can lead to more efficient and effective communication between generations. Initiatives such as intergenerational learning programs, where younger and older generations can learn from each other's experiences and perspectives, should be further promoted. The

digital natives can share their tech-savviness, while the older generations can offer insights gained from their life experiences.

Family structures will also have a critical part in fostering intergenerational digital communication. Families provide the most immediate environment for intergenerational interaction. As such, promoting a culture of mutual respect and learning within families can have a significant impact on how different generations understand and utilize technology.

Moreover, policymakers and tech developers need to acknowledge the dynamic nature of the digital divide. This issue is not static but continuously evolves with the introduction of new technologies and societal changes. Therefore, policies and tech solutions need to be adaptable and updated to cater to the varying needs of different generations [47, 48].

Communities also need to maintain their involvement in this ongoing effort. Local organizations can facilitate digital literacy programs tailored to their community's needs. Moreover, they can provide platforms for intergenerational interaction, helping to foster mutual understanding and respect.

Finally, each individual, regardless of their generation, has a role to play in bridging the intergenerational digital divide. By demonstrating empathy, open-mindedness and a willingness to learn, we can each contribute to creating a digitally inclusive society.

Despite the challenges that lie ahead, the ongoing efforts in bridging the intergenerational digital divide are promising. With continued commitment and collaboration across different sectors of society, we can look forward to a future where technology serves as a bridge, not a barrier, for communication between generations.

8.4 Limitations of the study

As with any comprehensive review and discussion, there are inevitable limitations to the scope and depth of the analysis presented in this study. It is essential to acknowledge these constraints to understand the context and potential areas for future research.

1. **Scope of data and references**: The study relies heavily on existing literature and published works up to the point of 2022. Thus, any recent advancements or shifts in intergenerational digital communication after this point are not considered.

2. **Geographic limitations**: While efforts were made to incorporate global perspectives, the majority of the cited studies originate from Western countries. There might be unique challenges and perspectives from non-Western countries that have not been adequately represented.

3. **Technology bias**: The technologies discussed, such as AI, VR, AR, and IoT, represent only a fraction of the vast digital ecosystem. There might be other emerging or less popular technologies with significant impacts on intergenerational communication not covered in this study.

4. **Generational stereotyping**: While discussing older and younger generations, there is an inherent risk of generalizing or stereotyping. It is important to remember that within each generational cohort, there are a plethora of individual experiences and technological proficiencies.

5. **Overemphasis on technology**: While the digital aspect of intergenerational communication is the primary focus, other non-digital factors influencing communication might not have received enough emphasis, potentially painting an incomplete picture.

6. **Potential research bias**: Relying predominantly on published studies and data might introduce a publication bias, where only studies with significant or positive findings get highlighted, thus potentially skewing the overall understanding.

8.5 Recommendations for future research

1. **Updated research**: Continuous research efforts are essential, considering the rapid pace of technological advancements. Future studies should also be updated regularly to capture the ever-evolving landscape of digital communication.

2. **Expanding geographic scope**: Future research should strive for a more inclusive global perspective, focusing on non-Western countries and their unique challenges and experiences related to intergenerational digital communication.

3. **Diverse technology exploration**: It would be worthwhile to explore other emerging technologies and platforms and their potential impacts on bridging the digital generational gap.

4. **Individual case studies**: To avoid generational stereotyping, case studies focusing on individual experiences can offer a more nuanced understanding of the complexities of intergenerational digital communication.

5. **Holistic approach**: While the digital aspect is crucial, integrating non-digital factors into the research framework can provide a more comprehensive understanding of intergenerational communication in its entirety.

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Chapter 8

Early Reframing of Aging and Intergenerational Relations for Improved Technology Design and Usage

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Abstract

The phenomenon of ageism is learned at an early age and has lifelong implications on technology design, adoption, and fluency. There is ample evidence supporting this statement. This chapter shares related findings from two American studies; a 2021 study sought to understand the experiences of older adults (those 65 years and older) using everyday information and communications technology (ICT). The second study, conducted in 2022 and 2023, gleaned insights from individuals 17–85 years who provided older adults with hands-on technology instruction. As longevity increases and technological solutions increasingly replace those that humans previously handled, it is evident that those who do not have the tools and the skills to use technology are being left behind. While there is general agreement that a problem exists, the topic of older adults and their digital exclusion seems to be deprioritized by the media, policymakers, corporate leaders, and technology manufacturers—the groups best positioned to increase awareness and make meaningful change. Since aging is inevitable, all should care about reframing aging and strengthening intergenerational relations that promote healthy aging.

Keywords: ageism, internalized ageism, age-positive, older adults, digital divide, digital fluency, ICT, intergenerational relations

1. Introduction

By 2050, the aging global population is expected to double, with 400 million people 80 years and older [1]. Every continent is seeing life expectancy extend into the 70s; however, lifespans into the 80s and older are primarily limited to high- and upper-middle-income countries [2]. In the U.S., older adults are expected to outnumber children for the first time in 2034 [3].

Along with this exponential growth is the ubiquitous nature of everyday Information and Communications Technology (ICT). ICT is the umbrella term that includes computer software and hardware, digital broadcast technologies, telecommunications technologies, and electronic information resources [4]. Organizations

and people use ICT for information processing and communication [5]. These technologies enable freedom, control, and efficiency in time and labor [6]. However, ICT can be challenging for many older adults, even if they do not have cognitive impairments [7]. Some older adults choose not to use the internet, while others may lack the necessary skills and network connectivity to use ICT. All these factors result in a double blow and expose older adults to social and digital exclusion [8]. Older adults' social isolation is much more concerning than poverty or diseases [9]. Exclusion from an increasingly digital world threatens the quality of life of older people [10].

The chapter begins with a literature review of selected concepts of ageism, including internalized or self-directed ageism, impacts of ageism, ageism in the technology industry, and individual and intergenerational approaches to address ageism. Next, the digital divide and its effects on older adults are explored. The literature reviewed is followed by key findings and recommendations from two unique studies; a 2021 study of older Americans' use of Information and Communications Technology (ICT) and barriers to use and a 2022/2023 study of those who provide technology instruction to older Americans. Each study's findings and recommendations are examined separately. The chapter concludes with the two studies' limitations, selected conclusions, and suggestions for further research.

2. Selected concepts of ageism

Ageism is age-related discrimination and prejudice based on stereotypes [11] and stems from the perception that someone is either too old or too young to be or do something [12]. Stereotypes are a natural, internal process that begins in infancy and enables information sorting and processing; external societal sources also influence stereotypes [13]. Due to its implicit and subconscious nature, ageism is a highly prevalent and socially accepted form of discrimination [14, 15]. Age prejudice is so common that it often goes unrecognized and is unknowingly perpetuated [16]. People of all ages are affected by ageism, but the adverse health impacts caused by ageism primarily affect older people [11]. Ageism against older adults may stem from fear and the belief that aging is associated with sickness, disease, and diminished mental and physical capacity [17].

Visual ageism is the portrayal of older adults in a discriminatory manner that manifests in the underrepresentation or misinterpretation of older adults in stereotypical or peripheral roles [18]. For example, older adults are often portrayed as sad, sick, or helpless. A Shutterstock search of older adults produced more than 300,000 results [19]. While many of the pictures were age-positive and captured a diverse group of happy older adults being active, using technology, and socializing, others relied on caregivers for assistance walking and combing their hair. In **Figure 1**, a man is sprawled on the floor, gripping his cane, and unable to get up [20]. There were also photos of sad and lonely older adults and others in pain. Because of the abundance of negative portrayals of aging, AARP partnered with Getty Images to launch The Disrupt Aging Collection, which has thousands of age-positive photos and videos [21]. While the quality and variety of the pictures are evident, the price for a single high-resolution image is prohibitive; a 300 pixels per inch photo is $499.

Cultural views on aging reflect how well men and women age [13]. Beliefs about aging—positive and negative—can add or subtract nearly eight years of life, respectively [13]. Unfortunately, most cultural world views about aging are negative [13].

A study of the residents of Oxford, Ohio, found that the most critical factor in determining lifespan was how people viewed and approached growing older.

Figure 1.
This photo is one of more than 300,000 royalty-free images of older adults on Shutterstock [19].

Attitudes about aging were more important than gender, income, social background, loneliness, or functional health [13]. The Japanese consider old age something to enjoy rather than fear, which may explain why the Japanese live longer than any other race in the world [13]. Japanese women going through menopause experience fewer symptoms of menopause, including hot flashes, than women of the same age in Canada and the U.S. [22]. Similarly, older Japanese men have higher testosterone levels than their European counterparts [23].

When do negative perceptions of aging develop? Children's perceptions of older adults are influenced by their relationships with grandparents and other significant older people [24]. Children adopt stereotypes but do not appear to be intrinsically ageist [24].

However, negative age stereotypes are abundant in children's books and games. On page 2 of George's Marvelous Medicine, George's grandmother is described as a "selfish grumpy old woman. She had pale brown teeth and a small puckered-up mouth like a dog's bottom" [25]. Wayne William Mee, a retired English teacher, wrote seven Grumpy Grandpa books for children between 5 and 11 [26]. In Grumpy Grandpa Goes Fishing, upon seeing a beautiful sunny day, the grandfather announces, "Time to go fishing!" Zoe is surprised and says, "You actually want to go outside?! You usually just watch TV or snooze" [27].

Headquartered in the Netherlands, Goliath Games created Greedy Granny [28], a game for children four years and older. Granny is depicted with purple hair and a complete set of false teeth. The game's objective is to steal Granny's snacks while she is asleep. If Granny wakes up, her dentures fly out of her mouth, and to resume the game and put Granny back to sleep, players must shove the dentures back into Granny's mouth.

Goliath Games did not forget about Grandpa; he is featured in Grumpy Grandpa [29]. Players attempt to change the channels on a remote control without waking up Grandpa, who has fallen asleep while watching television in his recliner. To reset the game, players put Grandpa's toupee on. The explanatory videos for Greedy Granny and Grumpy Grandpa show children jumping in fear when Granny and Grandpa

wake up and then forcefully shoving Granny's dentures into her mouth and Grandpa's toupee onto his head to resume play. Through play, children make sense of the world [30], and cognitive scientists have discovered many similarities between imagining and believing [31].

There are age-positive children's books that celebrate the intergenerational relationship between grandparents and grandchildren. One example is Charlotte Offsay's A Grandma's Magic for 3 to 7-year-olds, which recognizes that when a child is born, a grandma is born, too [32]. Elina Ellis wrote The Truth About Grandparents, a book for children between 4 and 8. The book juxtaposes stereotypes about older adults and grandparents—that they are slow, scared of new things, and do not dance with illustrations of grandparents roller skating, using a laptop computer (**Figure 2**), and dancing [33]. Reesa Shayne's rhyming picture book for children between 3 and 8, My Day With Grandma, captures Noah's fun time with his grandmother and their special bond. From the time his athletic-looking grandmother arrives to when she leaves, the two play hide and seek, read, and sing karaoke [34].

2.1 Selected impacts of internalized ageism

Internalized or self-directed ageism refers to self-stereotyping and holding negative attitudes about aging or perceiving oneself as too old to do or be something [35]. For example, internalized ageism can result in a reluctance to adopt new technologies and underestimate performance and the ability to learn technological skills [36]. The evidence shows that older adults who adopt negative stereotypes about aging experience adverse impacts on their cognitive, physical, and psychological health [37]. Older adults who believe aging meant getting sick had double the mortality rate of their peers who did not have negative expectations about their health [38]. A longitudinal study examining data over 38 years found that older adults who endorsed negative age stereotypes suffered a 30.2% greater memory decline than their peers who did not believe those age stereotypes [39].

Figure 2.
These grandparents demonstrate that many negative stereotypes of older adults are wrong. Reprinted with permission [33].

Age beliefs are modifiable mental maps with positive and negative expectations; they activate when people encounter anyone associated with the age belief [13]. When older adults hold negative age beliefs about themselves, they exhibit a decreased will to live, increased reaction to stress, impaired memory, and disinterest in engaging in healthy, preventive behaviors [37]. Conversely, holding positive age beliefs has powerful health benefits. People with the APOE4 gene carry a significant risk factor for dementia. And yet, many who have the gene never develop dementia. A study of 4765 participants who were 60 and older and dementia-free at baseline found that after adjusting for relevant covariates, among the individuals with the APOE4 gene, those with positive age beliefs were 49.8% less likely to develop dementia than those who held negative age beliefs [40].

2.2 Selected impacts of ageism in the technology industry

Ageism is evident at the societal, organizational, and individual levels and has a detrimental impact in the workplace and beyond [41, 42]. Generational or age stereotypes affect younger and older workers, are strongly endorsed, and are associated with poor work performance expectations [43]. Common age-related biases include younger workers being viewed as inexperienced, lazy, and lacking loyalty. In contrast, older workers are considered costly, resist change, and are inept technology users [44, 45]. When a job loss occurs, older workers, compared to younger workers, have a more difficult time. As workers age, their period of unemployment increases, and their chances of finding a job decreases [46, 47].

The technology industry workforce is mainly comprised of younger workers, which has been attributed to a combination of preference, age discrimination, and a need to reskill older workers. In 2007, Mark Zuckerberg, founder and CEO of Facebook, was one of a handful of entrepreneurs speaking to more than 650 aspiring entrepreneurs. He said, "If you want to found a successful company, you should only hire young people with technical expertise. Young people are just smarter" [48].

Many of today's older adults left school and the workplace before ICT was widely used and available [49, 50]. Even if older workers embrace lifelong learning and want to grow their skills, there is evidence that employers are reluctant to invest in older workers. The United Kingdom's Labour Force Survey revealed that as age increases, employee training falls sharply [51].

In a study of 18 technology firms, only IBM, Oracle, and Hewlett-Packard had a median employee age over 33. The median age in seven of the 18 companies was 30 years or younger [52]. These numbers compare to other industries in the United States, where the median age is 42.3 years [53]. Research from BCS, The Chartered Institute for IT, found that in the United Kingdom, only 22% of people working in IT roles are older than 50 [54]. The absence of older workers in the technology industry results in a bias in the development and design of technology [55]. This bias contributes to the digital divide and exclusion of millions of older adults. To successfully participate in society, ICT literacy or competency is necessary [56].

2.3 Individual and intergenerational approaches to combat ageism

Becca Levy, Ph.D., is a Yale professor of public health and a leading researcher on positive and negative age stereotypes [57]. Dr. Levy maintains that age beliefs are learned, reinforced over our lifetimes, and possible to change [13]. Based on her scientific findings and observations, she developed an ABC method consisting of three stages [13].

Awareness is the first stage, and it begins with reflection. Examine personal age beliefs, negative stereotypes held, and behaviors when speaking with older adults. Identify multiple positive models of aging that disprove negative stereotypes, not just the ones pushing extreme boundaries and setting records. Recognize that aging is a unique, heterogeneous process. Search for examples of ageism in headlines, birthday cards, and offhand comments that promote stereotypes such as, "I just had a senior moment." Levy suggests that young people consider themselves older people in training and seek out those born before them, whether neighbors, relatives, or book club members. Bringing together people of different ages improves people's views of each other [58]. If these opportunities for interaction are not readily available, Levy suggests being exposed to older people's work, such as podcasts, movies, and art.

Blame is the second stage, and Levy suggests identifying the root cause of problems and not confusing cause and effect. For example, it is not necessarily the aging process that is difficult but ageism. Positive age beliefs are a predictor of good health and well-being, whereas negative age beliefs are a predictor of poor health.

Challenging negative age beliefs is the third stage in Levy's method, and there are actions people of all ages can take to identify ageism, including self-directed ageism. Changing the Narrative launched an anti-ageism birthday card campaign and invited artists to design cards that celebrate the joys of aging [59]. Andy Reynolds, a New York City-based graphic designer and publicist, launched a line of #AgeismSucks merchandize and used social media to applaud age-positive efforts and to spotlight overt and covert ageism [60].

3. The digital divide: a barrier in intra- and intergenerational relations

The digital divide refers to not just one barrier but many; there are individual, organizational, and global inequalities [61] in access, adoption, use, skills [62], and internet access [63]. Studies from the past two decades have shown that uneven access to digital resources reflects a more significant issue of societal inequalities; socioeconomic status determines access to many resources, including technology [64, 65].

Access is only one component of the high-tech equity dilemma. Combatting inequalities of the information age requires considering matters such as institutional discrimination, health and safety issues, environmental injustice, and privacy rights [66]. Implementing policies and regulations could address digital rights with taxes, subsidies, and tariffs for public access points [61].

3.1 Selected impacts of the digital divide on older adults

Findings show that for older adults, the digital divide is associated with specific technologies, online practices, and not all technologies and internet use [67]. Exclusion also occurs if a person's digital skills remain static rather than continue developing with new technology [68]. While ICT adoption among older adults is increasing, an age-based digital divide shows that the lowest number of internet users are those 65 and older [69]. Excluding older adults from information technology has been identified as an issue in many studies [70–74] because it results in difficulties accessing resources, participating in activities, and engaging with others.

As everyday life becomes increasingly dependent on the internet, people who do not use the internet likely will become more disadvantaged and disenfranchised [75]. Difficulties in using technologies such as ATMs may prevent older adults from living

independently [76]. Many examples exist of programs and efforts to help older adults, but accessing them becomes an obstacle. In January 2021, two COVID-19 vaccines were available to older adults and high-risk individuals; obtaining an appointment and a vaccine was difficult even for fluent technology users [77]. "You can't have the vaccine distribution be a race between elderly people typing and younger people typing. That's not a race; that's just cruel," said Jeremy Novich, a New York City-based psychologist who launched an effort to help older adults navigate the technology to schedule vaccine appointments [78]. The U.S. Medicare Prescription Drug, Improvement, and Modernization Act of 2003 encouraged older adults to use the internet to manage their account information online. Instead, the act excluded many Americans from accessing vital health information [79].

The inability to manage technologies in everyday life can be a risk for older adults by excluding them from social activities [80]. Significant evidence shows that social isolation and loneliness are harmful for older adults. U.S. Surgeon General Vivek Murthy said that loneliness reduces a lifespan comparable to the damage caused by smoking 15 cigarettes a day [81]. Older adults' social isolation is much more concerning than poverty or diseases [9]. There is clear and compelling evidence that limited social networks and social isolation led to adverse health outcomes such as vision impairment and incontinence in older adults [82]. In 2014, one-third of South Korea's suicides were among individuals 60 years and older [83].

4. 2021 study of older Americans' use of information and communications technology (ICT) and barriers to use

In 2021, the author conducted a qualitative research study involving 15 older Americans. A convenience sampling approach was used to identify study participants. The youngest person was 65, and the oldest was 87. Ten participants identified as female and were 65–85 years. Five participants identified as male and were 67–87 years. Five participants were people of color; one Asian, two Blacks, two Hispanics, and 10 were white. Thirteen participants were retired, one worked full-time, and another worked part-time. Despite education not being part of the participant criteria, all 15 older adults reported earning a college degree; eight had master's degrees, and three held doctoral degrees. They resided in California, the District of Columbia, Texas, and Utah.

Interviews were conducted individually via videoconference and consisted of 16 open-ended questions. The three overarching research questions were:

- How do older adults use ICT?

- What barriers prevent older adults from using ICT?

- What are the recommended practices for technology companies to improve ICT for older adults?

The 16 questions were entered on a spreadsheet, videoconference transcripts were downloaded, and each participant's interview was reviewed individually. Key words summarizing each individual's answer were entered. After repeating the same process for all 15 interviews, the researcher looked for common themes and findings. Insights that were markedly different were also highlighted.

Following are the study's major findings and recommendations. They include supporting quotes from one or more of the 15 study participants where relevant. Pseudonyms were assigned for anonymity.

4.1 Major findings

Data from the 15 participant interviews were analyzed, and six recurring themes emerged:

- Age is not a determinant of disability status

- ICT problems are technical, and user interfaces are unintuitive

- Older adults appreciate the power of ICT and feel excluded from it

- Older adults do not have sufficient ICT training

- Older adults do not have adequate access to ICT help resources

- A lack of confidence prevents some older adults from using ICT

An overarching finding was the wide variety of differences between all participants. Other than the fact that all earned college degrees, had high-speed internet in their homes, and each owned multiple ICT devices, there were few commonalities. Their abilities, confidence levels, and when, where, and how they learned their technological skills varied. **Table 1** shows only one participant, in her 60s, who

Participant	Gender identity	Age	How/where learned	Confidence with ICT
Ava	Female	76	Classes, self-taught	Confident
Belle	Female	75	Class, friends	Not confident
Corinne	Female	85	Family	Not confident
David	Male	84	Work	Confident
Emmett	Male	75	Work, no training	Confident
Grace	Female	77	Work	Confident
Griffon	Male	67	Classes, work	Confident
Kelly	Female	69	Work, no training	Confident
Margot	Female	74	Work, family	Somewhat confident
Mia	Female	69	Work	Confident
Michael	Male	87	Work, training	Somewhat confident
Petra	Female	66	School, family	Very confident
Rae	Female	81	Work	Very confident
Ryan	Male	81	Work	Confident
Umi	Female	65	Work	Confident

Table 1.
Summary of participant attributes and self-reported confidence when using ICT.

learned ICT in school. She was one of two participants to describe themselves as very confident ICT users.

Recommendations to address the findings follow in Section 4.2.

Most individuals who said they were confident ICT users indicated their confidence waned when problems occurred or they attempted new or unfamiliar tasks ([84], p. 124).

4.1.1 Finding 1: age is not a determinant of disability status

Five of the 15 individuals reported having a disability; none of the five who reported having a disability said their conditions prevented them from using ICT. Three individuals had hearing issues, and two had vision-related impairments. Nobody complained of having dexterity challenges due to arthritis or any other condition. Age did not determine disability status, as the youngest participant had glaucoma.

4.1.2 Finding 2: ICT problems are technical, and user interfaces are unintuitive

Participants shared that the ICT problems they experienced (**Table 2**) were sometimes so technical that they did not know how to explain their issues. They suggested simplifying commands and buttons on the keyboard.

> *"People who don't know anything about technology don't know the questions to ask."*
> *– Corinne*

> *"My biggest complaint is that I feel there's no interaction with software programmers. They think they know better and know what we want, and they don't." – Petra*

Problem	Frequency
Software update	7
Unintuitive interface	5
Technical language or instruction	3
Apps	2
Connectivity to the internet, printers, etc.	2
Help difficult to obtain	2
Navigation	2
Passwords	2
Processing time	2
Retrieving files	2
Advertisements	1
Device compatibility, e.g., between Apple and PC	1
Spam	1
Syncing	1

Table 2.
Summary of participants' ICT problems and frustrations.

Software updates were the top complaint of study participants, along with the unintuitive interface of technology. Several participants found software updates so bothersome that they ignored installing them altogether, which often led to future problems ([84], p. 125).

4.1.3 Finding 3: older adults appreciate the power of ICT and feel excluded from it

Even though 13 of the 15 study participants were retired, they all reported using ICT daily. From the least confident to the most confident users, they recognized the power of technology. Many felt that ICT was not designed for them and that technology firms overlooked them as consumers and customers.

4.1.4 Finding 4: older adults do not have sufficient ICT training

Because most ICT was introduced after the participants left work and school, they did not receive on-the-job or other formal training methods.

> *"I think it would be helpful if they [technology companies] provided some training at the outset...they kind of give you the device and leave you on your own. It would be helpful if they had instruction manuals." – Michael*

4.1.5 Finding 5: older adults do not have adequate access to ICT help resources

Of the 15 participants, only one lived in an intergenerational household; she benefitted from her granddaughter's assistance. Others relied on visits or calls with family, friends, or neighbors. Several mentioned Apple's Genius Bar, but they expressed frustration that getting help was not easy and wanted to work with people who are patient and not condescending.

4.1.6 Finding 6: a lack of confidence prevents some older adults from using ICT

Given their current needs, several participants stated they had no plans to learn additional technological skills, whether it was self-directed ageism or satisfaction with what they knew.

> *"I should learn how to do more, like shop and order things online, but I can't do it."*
> *– Corinne*

4.2 Selected recommendations from the study on older adults and ICT

4.2.1 Recommendation 1: simplify and create an intuitive, user-friendly experience

While the precise term "user-centered design" was not used by the participants, they advocated for a more straightforward user experience that reflected their wants and needs.

> *"What tech companies need to do is put a great big help button on the screen and just hit help, and somebody will pop up on the screen and tell you what to do." – Griffon*

> *"Minimize the complexity of some steps and consider physical issues…ensure continuity so every time you want to open it, it's going to be right here, and every time you want to close it, it's going to be right here." – Petra*

> *"I need really simple directions." – Ava*

4.2.2 Recommendation 2: involve older adults in product design and solutions

The study findings found that older adults are a heterogeneous group with vast and varied needs. Some participants in their 70s and 80s were confident technology users, whereas others in their 60s were confident as long as they stuck with familiar tasks. Involving a wide range of older adults in product testing and design would likely result in a better product.

> *"In designing and building things, those who are smart gather information from users." – David*

> *"Ask older people to provide instructions for their peer group!" – Ava*

4.2.3 Recommendation 3: be proactive in training users and non-users

The estimated technology spend of older adults is significant, and technology firms would reap tremendous financial and reputational benefits by recognizing that brand loyalty is created when customers consistently feel valued. Rather than ignore and overlook novice users—especially older adults—they should heavily invest in them.

> *"Show me how to use technology safely." – Ryan*

4.2.4 Recommendation 4: make getting help easy and accessible

All companies—especially technology firms—should look at their websites from the lens of those seeking help and test assumptions with users of all levels for accessibility. Is help easy to find? Is it offered in multiple languages? Are there options available based on skill level or need? If technology firms do not want to invest in creating user manuals and staffing helplines to assist people in multiple languages, they should fund nonprofit organizations willing to do this vital work.

5. 2022/2023 study of those who provide technology instruction to older Americans

In late 2022 and early 2023, the author embarked upon a qualitative study to gain insights from those who help older adults develop or strengthen their technological skills. Twenty-six participants were interviewed; they ranged in age from 17 to 85. Twenty participants identified as female and were 17–85 years. Six participants identified as male and were 17–71 years. Eleven participants were people of color; five Asians, three Blacks, three Hispanics, and 15 were white. Most

participants worked for libraries and community-based charitable organizations; the two youngest—high school students—were in the process of forming a non-profit entity.

The trainers, sometimes called digital navigators, resided in California, the District of Columbia, Florida, Idaho, Illinois, Maryland, Missouri, New Mexico, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Vermont, and Wisconsin. While some trainers worked for nonprofit organizations exclusively serving those 50 years and older, others, such as librarians, offered their services to people of all ages but said it was mostly older adults who sought help.

Most instructors specialized in either Apple products or Android. Some programs offered free devices through private grants or government funding, whereas others were bring-your-own-device (BYOD) programs. Examples of the courses offered or skills taught include Windows 10 and 11, Android, using Google and essential apps.

A convenience sampling method was used to recruit the participants. The executive director of Oasis San Antonio, one of eight regional centers of the national nonprofit organization, let her technology trainers know of the study and then passed along the contact information for the six individuals willing to participate. Twenty participants were obtained through the researcher's post on the National Digital Inclusion Alliance LISTSERV, sent to thousands of subscribers.

Interviews were scheduled and conducted individually using videoconferencing technology. Study participants were asked 14 questions sent to them in advance. The three overarching themes of the interview questions focused on understanding:

- Most common technology problems they help older adults solve

- Barriers to learning

- Recommendations for teaching or strengthening the technological tools of older adults

The researcher followed the same data analysis approach as the study conducted in 2021. Videoconference transcripts were downloaded, the 14 questions were entered on a spreadsheet, and each participant's transcript was reviewed individually. Highlights summarizing each individual's answer were documented. After repeating the process for all 26 interviews, the researcher looked for common themes and findings. Insights that were markedly different or innovative were also noted.

Following are the study's major findings and recommendations. They include supporting quotes from one or more of the 26 study participants where relevant. Pseudonyms were assigned for anonymity.

5.1 Major findings

Data from the 26 trainers were analyzed, and three recurring themes emerged. Recommendations to address the findings follow in Section 5.2.

- Technical problems varied greatly

- Fear and a lack of confidence are barriers that may need to be addressed before learning can begin

- Being patient and building a trusting, supportive relationship with students supports the learning process

5.1.1 Finding 1: technical problems varied greatly

The heterogeneous nature of older adults is reflected in the assistance they need. Some needed help getting connected to wifi and printers. Passwords were forgotten by many, and others required help learning the basics of their smartphone, including swiping and mastering gestures, downloading applications, and establishing email accounts.

5.1.2 Finding 2: fear and a lack of confidence are barriers that may need to be addressed before learning can begin

Fear was brought up as a fairly consistent problem that trainers needed to help their students overcome. While all students' needs are different, assessing—in an empathetic and respectful way—whether fear and a lack of confidence are barriers may be a helpful place for trainers to begin.

5.1.3 Finding 3: being patient and building a trusting, supportive relationship with students supports the learning process

Several instructors mentioned that getting to know their older students helped create a welcoming and safe environment that, over time, was conducive to learning.

5.2 Selected recommendations from the study on instructors who provide technology training to older adults

Eight recommendations follow for those wanting to help older adults develop or strengthen their digital skills, whether by building a program or helping a friend or family member.

- Meet older adults where they are and understand what is important to them

- Be prepared to provide reassurances. Before learning can begin, some older adults may need to overcome the fear of:

  o Breaking their device(s)

  o Erasing or deleting something important

  o Being exposed to risk, e.g., account takeover, phishing, smishing

- Leverage available resources; digital inclusion advocates are happy to share

- Have patience; that trait is even more important than being technically proficient

- 1:1 instruction is ideal; the smaller the class size, the better

- Be flexible with the curriculum; mastery is more important than completing modules

- Build confidence to enable skill-building

- Repetition, review, and giving homework are essential

5.2.1 Recommendation 1: meet older adults where they are and understand what is important to them

It is essential not to make assumptions about the technological abilities of older adults. Ask them about their proficiency and understand what their goals are. Some students may want to update their resume, while others wish to keep in touch with friends and family overseas. Others may be reluctant users, unsure of the value of the technologies. And some older adults may be savvy technology users and want to strengthen a specific skill.

As the researcher found in the 2021 study of older adults, there is a significant variation in ICT confidence, skills, and abilities.

> *"I try to figure out what people want to do with technology and meet them where they are. In a classroom setting, I get the students to connect to build a community around learning and helping each other." – Astrid*

> *"I keep things simple for my learners. I explain that there are many functions on a device that you don't need to use (like a remote control), especially in the beginning. I simplify and focus on the things they really need." – Mei*

5.2.2 Recommendation 2: be prepared to provide reassurances; before learning can begin, some older adults may need to overcome fear

Perhaps due to the high cost of smartphones, tablets, and laptop computers, many older adults fear breaking their devices.

> *"For many new students, I help them overcome their fear of using their device, breaking it, or making a mistake. I tell them you can only break it by throwing it against the wall or pouring water onto it. If you accidentally delete something, you can likely retrieve it." – Tina*

5.2.3 Recommendation 3: leverage available resources; digital inclusion advocates are happy to share

The participants associated with a nonprofit organization or county libraries were given the curriculum for their training and customized it as needed. Some others were creating their materials. In America, search for digital navigator programs. Organizations such as the National Digital Inclusion Alliance are great resources. There is an incredible willingness to share best practices and resources in the digital inclusion space.

5.2.4 Recommendation 4: have patience; that trait is even more important than being technically proficient

The study participants emphasized being patient more than any other trait. Having patience was, by far, the recommendation made above all others by trainers when asked what advice they had for someone about to begin teaching or strengthening ICT skills to older adults.

> *"Take the time to be thorough and make sure they understand everything. Don't make people feel like you're in a rush." – Aisha*

> *"Sometimes it has taken individuals two weeks to learn how to get into Zoom and email." – Leah*

5.2.5 Recommendation 5: 1:1 instruction is ideal; the smaller the class size, the better

If one-on-one training is not possible, keep the group size small, and have a primary instructor and "roamers" who can walk around the room to see if help is needed.

> *"One-on-one tends to work much better for older adults because, in a classroom setting, you have people with a variety of perspectives. If it's one-on-one, you can take a tangent versus sticking to the curriculum." – Lorenzo*

In addition to keeping the class small, focusing the curriculum on the bare essentials is recommended.

> *"I teach them the bare minimum of tech. They don't want to know how the tech works behind the scenes, but I do train them on certain things, such as the language they need to know like URLs, web pages, and browsers." – Leah*

5.2.6 Recommendation 6: be flexible with the curriculum; mastery is more important than completing modules

Regardless of the topic, most instructors have objectives they want to achieve for a class. For example, the first hour of the course will be spent reviewing and adjusting your smartphone's settings. The second hour will be focused on sending text messages. Many digital navigators stressed the importance of pushing curriculum aside to ensure students keep up.

> *"What makes me a good instructor is not just listening, but adapting to what I'm hearing, versus what I want to say or teach." – Ulla*

> *"Don't move on to the next subject until there is comprehension." – Leah*

5.2.7 Recommendation 7: build confidence to enable skill-building

Like riding a bike or driving a car, learning in small steps makes the task manageable and sets the student up for success. Older students may be overwhelmed learning

to use applications, programs, and devices introduced after many left schools and the workforce.

> *"Boosting the confidence of older students really helps. They call themselves dumb."*
> *– Audrey*

> *"I tell my students they'll dazzle their grandkids with the skills they're learning, and I make them comfortable; they're not here attending a lecture! I say the only dumb question is one that isn't asked, and that if they don't learn, I have failed as an instructor." – Tina*

5.2.8 Recommendation 8: repetition, review, and giving homework are essential

Just as strength training builds muscle memory, using a mouse or a touchscreen takes practice. Show the students how to do something, then ask them to repeat the task and show you. If a course is scheduled over multiple days, e.g., one class for 2 hours and then the second class for 2 hours a week later, be prepared to spend part of the second class repeating what was learned in the first class.

> *"It takes time to learn. Students have to continually practice and be okay with being uncomfortable." – Audrey*

6. Limitations and selected conclusions

The researcher identified several study limitations. First, the study findings were based on 41 interviews conducted in the U.S. While the literature review cites research conducted globally, the results highlighted in this chapter are U.S.-centric; the sample only included participants from the U.S. A convenience sampling approach was used for both studies to identify individuals who met the participant criteria. This method was efficient for the researcher and enabled the studies to be completed within the desired timeframe. A more rigorous approach would have been to use a stratified sampling method and randomly choose individuals from each group. Although having a university education was not part of the participant criteria for the 2021 study of older adults, all 15 individuals earned a college degree. Finally, the researcher advocates for older adults and has inherent biases that favor age-positivity and digital inclusion.

Following are selected conclusions the author identified as a result of the literature review and the two studies referenced in this chapter. Strengthening intergenerational relations and reframing aging early in life are critical actions that have lifelong implications on health, longevity, and a willingness to learn and use emerging technologies. Younger people must be encouraged to develop relationships with older people, and older people form bonds with younger people formally and informally. Research shows many correlations to poorer health outcomes related to internalized ageism. Evidence also indicates that digital connections are conducive to feelings of connection, with social isolation having particularly adverse health outcomes for older adults. Findings from both studies show ample opportunities and practical solutions to ensure more older adults have access to and can be connected online if they choose, affordability withstanding.

Understanding the root causes of ageism and the fear of aging is critical to addressing the problem. Aging is an ongoing life process, and death is also part of that

process. Openly discussing and teaching these life stages—at an early age—may be a healthy approach to changing the narrative of aging for young and older people. It is also imperative to show that aging does not automatically come with frailty, illness, and cognitive impairments. The decisions and lifestyle choices people make early in life influence the aging process negatively and positively.

As lifespans increase and the number of older adults outnumbers children, individuals and organizations must take action now. As Dr. Levy said, even the young are older people in training.

7. Recommendations for future research

Recommendations for future research are shown in **Table 3** and range from studying ageism, adult learning, and older adults developing technological skills and fluency. Each idea includes a rationale for conducting the study.

Conducting future research on the topics listed in the table will provide valuable insights and contribute to the body of knowledge available [85].

Recommendation	Rationale
Conduct a controlled study of children's perception of aging when interacting with age-positive and ageist books and games	To understand the influence of ageist books and games and age-positive books and games on children and their perceptions of aging
Conduct a longitudinal study of multigenerational households and single-generation households to explore perceptions of aging	To explore perceptions of aging and how they differ in multigenerational households and single-generation households
Conduct a comparative study of older adults who possess age-positive perspectives and those who engage in self-directed ageism	To understand factors that shaped the varying perspectives on aging and resulting outcomes
Use Bronfenbrenner's ecological systems theory and a random sampling approach to study perspectives on aging	To identify environmental factors that influence perspectives on aging, both positive and negative
Conduct a correlational research study on the fear of aging and the fear of dying	To understand whether there is a relationship between the fear of aging and the fear of death
Study adult learning best practices for developing fluency in a second language	To understand whether similar concepts apply to teaching adult learners a second language to adopting ICT skills
Study older adults of all educational backgrounds to understand how they use ICT, the barriers that get in their way, and how their ICT experiences could be improved for them	To determine whether older adults with lower levels of education have similar experiences to those with more education

Table 3.
Recommendations for related studies.

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Conflict of interest

The author declares no conflict of interest.

Thanks

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[85] Recommendations for related studies. Source: Own elaboration

Section 3

Environmental Challenges

Chapter 9

Smart Healthy Age-Friendly Environments (SHAFE) Bridging Innovation to Health Promotion and Health Service Provision

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Abstract

A number of experiences have demonstrated how digital solutions are effective in improving quality of life (QoL) and health outcomes for older adults. Smart Health Age-Friendly Environments (SHAFE) is a new concept introduced in Europe since 2017 that combines the concept of Age-Friendly Environments with Information Technologies, supported by health and community care to improve the health and disease management of older adults and during the life-course. This chapter aims to provide an initial overview of the experiences available not only in Europe, based on the research work of the participants of the International Interdisciplinary Network on Health and Well-being in an Age-Friendly Digital World (NET4Age-Friendly), which could be of interest to preventive, health and social authorities. The chapter reports good practices, pain points, and bottlenecks that may require a collaborative, interdisciplinary research approach to facilitate the transformations towards smart, sustainable, health and age-friendly cities and communities.

Keywords: age-friendly cities and communities, digital integrated care, integrated health services, people-centred health services, smart built environments

1. Introduction

A growing body of discourse and narrative surrounds the age-friendly cities and communities (AFCC) domain. Before 2019, discourse was primarily situated

around the World Health Organization's (WHO) age-friendly city model [1], with little acknowledgement from organisations and scholars alike pertaining to technology. Marston and van Hoof [2] proposed an extended version of the current WHO framework [1] in conjunction with coining the term *"Smart Age-friendly Ecosystem"* (SAfE) (**Figure 1**). The purpose of the SAfE framework is to show the interconnected relationships within the existing WHO framework and the role that technology and the physical space interplay.

Conversely, the *"Concept of Age-friendly Smart Ecologies"* (CASE) (**Figure 2**) framework takes an ecology standpoint while considering various contemporary scenarios across the life course (e.g., intergenerational living, a young family with a disabled child, an older adult who is ageing without children, etc.) and the larger ecosystem of the physical space [3]. Several recommendations are proposed to move this discourse forward, including the use and implementation of the *"Age-friendly Cities and Communities Questionnaire"* (AFCCQ) [4], across different sittings (e.g., urban, city, or rural) and countries, aiming to assess the impact of AFCC on the older adults.

More recently, a succinct overview of various AFCC frameworks has been presented by van Hoof and colleagues [5], suggesting addressing the need for co-creation programmes, initiatives targeting different groups of people to facilitate transparency and explore retrofitting of homes and affordable technologies to be installed into homes, while activities to facilitate intergenerational living are discussed, especially taking a life-course perspective. Moreover, the final recommendation purports to
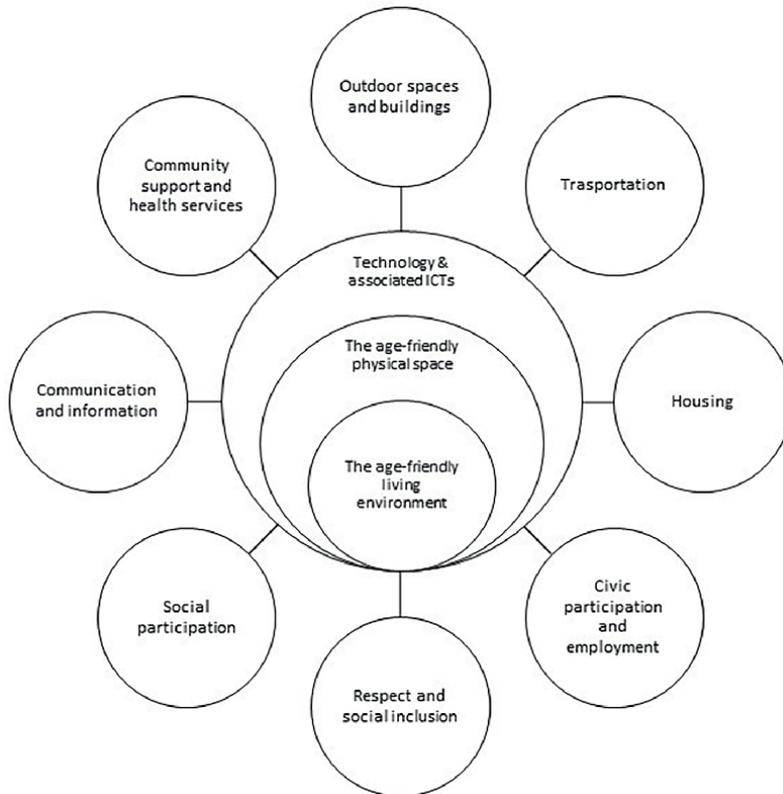
Figure 1.
Smart Age-friendly Ecosystem (SAfE) Framework. Source: own elaboration based on Marston and van Hoof [2].
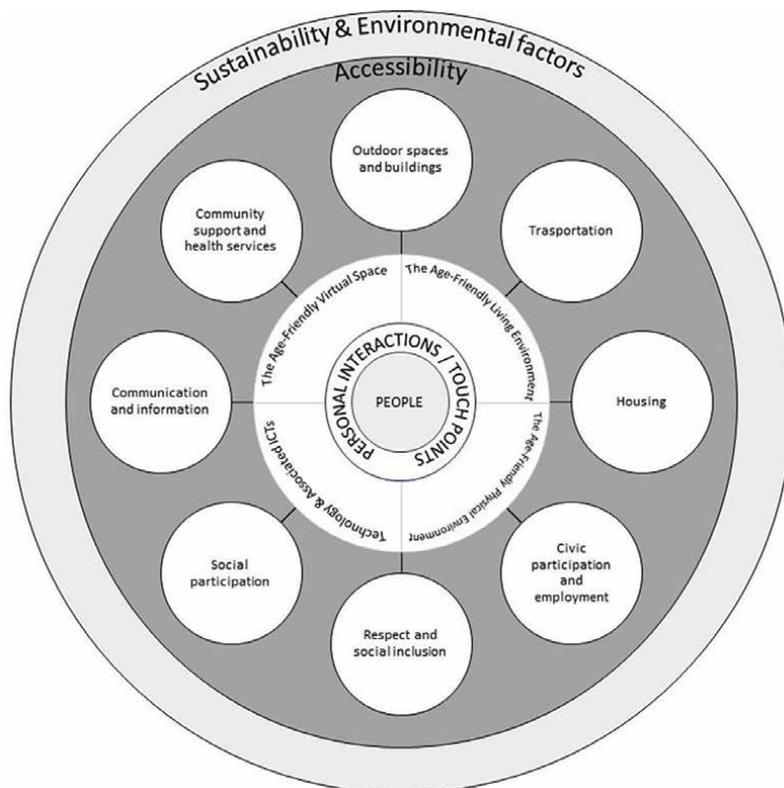
Figure 2.
Concept of Age-friendly Smart Ecologies (CASE) Framework. Source: own elaboration based on Marston et al. [3].

renew standards and classifications of AFCCs to meet twenty-first-century expectations and challenges, ensuring agile approaches can be applied in conjunction with applied needs and considerations [5]. More recently, Marston et al. [6] explored and discussed the current situation of AFCC, culminating in existing evidence and the recent publication of the Dementia Framework by the WHO [7], questioning why it still does not acknowledge technology even though there is a wealth of research surrounding technology use in this domain.

Furthermore, Marston and colleagues [6] coin several new terms, one being "Transgenerational Living Communities and Cities" (TLCC), positing how all generations situated within a community experience and feel part of the inclusive and autonomous ecosystem(s). Such a new term takes forward a viewpoint for the future of our societal ecosystems and builds on the past and present to enhance and move forward in the next 20–50 years.

Smart Health Age-Friendly Environments (SHAFE) is a concept introduced in Europe in 2017, by Dantas and van Staalduinen, through one of the Thematic Networks of the European Union (EU) Health Policy Platform, approved by the European Commission [8]. SHAFE was inspired and bred out of one of the six groups of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA), group D4 "Age-friendly buildings, cities, and environments" [9]. SHAFE combines the concept of Age-Friendly Environments with innovative technologies, highlighting the importance of connecting them to People and Places to improve health and well-being.

The SHAFE thematic network brought together multidisciplinary stakeholders with the aim of drawing the attention of policymakers, organisations, and citizens to the need for better alignment between health, social care, built environments, and Information Technologies (IT), both in terms of policy and funding [10]. In 2018, the SHAFE network launched a Framing Paper [11] and a Joint Statement [12] in which special emphasis is given to prevention, smart homes for people suffering from chronic diseases and disabilities, and support tools, including robotics, smart living environments, and smart communication, to improve formal and informal care, and increase the well-being and active participation of older people [13]. In 2020, an international multidisciplinary network of scientists, researchers, and entrepreneurs was established under the European Commission's Cooperation in Science and Technology (COST) programme to promote knowledge, improve holistic strategies, and support the development of user-based solutions (users, caregivers, and authorities) for the realisation of SHAFE [14]. Since 2022, the SHAFE Foundation [15] has been launched to sustain the future of the SHAFE network and further explore the results achieved so far.

Another result of the EIP on AHA and in close cooperation with the WHO, the "Covenant on Demographic Change: towards an Age-Friendly Europe" was launched in 2015 [10]. At the end of the two-year EU-funded project AFEINNOVNET in 2016, the Covenant was officially established as an international not-for-profit association under Belgian law. The European Covenant on Demographic Change (Covenant) aims at gathering local, regional, and national authorities and other stakeholders, which commit to cooperate and implement evidence-based solutions to support active and healthy ageing, aligned with existing initiatives such as the WHO Global Network for Age-Friendly Cities and Communities (GNAFCC), the WHO-European Healthy Cities Network, and the Dublin Declaration on Age-Friendly Cities and Communities. Starting with 68 Founding members, the Covenant reached 159 members, including 46 Full members, 88 Ordinary members, and 25 Associate members, with 24 countries represented in the network (21 from the European Union Member States, plus the United Kingdom, Serbia, and Israel).

The EIP on AHA Reference Site Collaborative Network (RSCN) [16] and another one of the six groups of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA), group A3, on Lifespan Health Promotion & Prevention of age-related frailty and disease, drove forward the evolution of a life-course approach to active and healthy ageing, strengthen the SHAFE approach. The RSCN, Programma Mattone Internazionale Salute (ProMIS) [17] and SHAFE networks, and the VIGOUR project [18] have been collaborating to identify pain points and bottlenecks that may require a collaborative, interdisciplinary research approach to facilitate the transformations towards smart, sustainable, health and age-friendly cities and communities. Their efforts are in line with the four interrelated themes recently set out by the WHO Council [19], to reorient economies to deliver health for all across:

- Value—valuing and measuring what matters through new economic metrics;

- Finance—how to finance health for all as a long-term investment, not a short-term cost;

- Innovation—how to advance health innovation for the common good;

- Capacity—how to strengthen dynamic public sector capacity to achieve health for all.

The present report provides several examples of experiences of innovative approaches for care and cure services that may facilitate the implementation of integrated care, at the same time highlighting challenges and enablers that worked on the ground and may be helpful to others.

2. Experiences with innovative approaches to health

2.1 Environmental determinants of longevity

The multiplicity and interdependencies of the hallmarks of ageing [20, 21] reflect the variety of their contribution underpinning the disparity between biological and chronological age. Indeed, ageing is a complex process to be considered as a whole, where regulatory patterns only in minor part rely upon genetic factors and can be largely influenced during the entire life-course by the adoption of healthy lifestyles, especially in terms of nutrition [22] and physical activity [23]. This concept has been stimulating the development of integrated and innovative approaches where "precision ageing" is enabled by an individual signature elaborated through the convergence of the different risk factors towards a scorecard, driving subsequent multidomain interventions [24].

Demographic research has identified the regions of the world with the highest concentration of centenarian people to understand the environmental factors and lifestyles that make the population live longer [25]. Ongoing research into the lifestyle and environment of the longest-lived people in the world has led to the identification of nine specific lifestyle habits that determine longevity [26]. In Europe, the blue zones are not surprisingly located on two islands in the Mediterranean Sea, where climatic conditions, nutrition, and lifestyles far from city life have favoured longevity in local populations [25]. This innovative, systematic, and environmental approach to well-being seeks to optimise politics, urban design, and social networks. The common denominators of long-lived communities have been experimentally transferred to communities across the United States by working with policymakers, local businesses, schools, and individuals to shape Blue Zone community environments.

2.2 The development of "age-appropriate" living environments

In recent years, there has been an evident increase in the number of older people, particularly in urban areas, alongside changing lifestyles. This emphasises the growing importance for older people to be able to continue living in their community. In particular, the population aged 60 and older is growing faster than all younger age groups [27, 28]. "Ageing in place" is defined as "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level" [29]. This *ageing in place* leads to both concern and a need for current and future older people to be involved in the planning and development processes of their living environments [30, 31]. This is because it has been shown that there is a clear link between the place and environment of older people and their quality of life and well-being [32]. On the other hand, studies show that age-related planning of neighbourhoods, living environments or spaces, in general, is often shaped by stereotypes. In this context, Peterson and Warburton already argued in 2012 [33] that "business interests sustain stereotypes of older people as either ageless or dependent" and that "spaces designed for older people reinforce historical legacies of separation

from the community". As a result, the needs of present and future older people are not, or at least not sufficiently, considered. Fabian et al.'s study [34], based on Lefebvre's "The Production of Space" theory [35], explored how age-friendly living environments are conceived, practised, and lived in and to what extent age-related stereotypes influence these processes. With two case studies (development of a public park for the promotion of intergenerational physical activity/development of a new city square) in different neighbourhoods in Basel (Switzerland), the investigation aimed to explore whether such stereotypes are present and if so, among which stakeholders and what impact they have on the planning processes and outcomes. For both cases, interviews and walk-throughs were conducted with experts from different planning disciplines and with current and future older people. The results show that the ideas of age and older people often remain diffuse in planning practice. At the same time, older people are often seen as a homogeneous and fragile group. The results show that the importance attached to neighbourhoods in old age can vary greatly. For spatial, but also for all other planning projects that are made for older people, it should be the case that the affected older people are made participants to better meet their needs.

2.3 Examples of socio-technological solutions in central and Eastern Europe for smart, age-friendly cities and communities

In 2016, Klimczuk and Tomczyk [36] conducted a study that focused on integrating the concept of smart cities with the idea of age-friendly cities and communities. The study proved that these concepts are intertwined in both theory and practice regarding the promotion of healthy and active ageing, universal design, usability, and accessibility of age-friendly environments, diminishing the digital divide and robotic divide, as well as lowering older adults' social isolation. The study investigated relations between the selected smart and age-friendly cities and communities, the Active Ageing Index of 2012 and 2014 [37, 38], and a well-known typology of European welfare systems by Esping-Andersen [39], expanded by Kazepov [40]. The study findings demonstrated that integrating practical smart city concepts and age-friendly solutions is necessary to address demographic changes and overcome infrastructure gaps and institutional barriers in Central and Eastern Europe (CEE). The comparative analysis was based on the data of the ranking of medium-sized smart cities in the European Union (EU) created in 2007, 2013, and 2014, developed by the Vienna University of Technology [41, 42]. Among the 77 European medium-sized cities with a population between 100,000 and 500,000 inhabitants, none of the cities included in the top 10 positions were based in the CEE countries. Moreover, the findings proved that the ranking of medium-sized smart cities is well correlated with the Active Ageing Index (AAI). Nearly all the smart cities with the highest scores are located in the Nordic countries. The positive correlation between AAI and gross domestic product per capita suggests that countries with relatively higher living standards have a better ability to create environments for active ageing. Finally, the comparison between the ranking of medium-sized smart cities, AAI, and welfare regimes by Esping-Andersen [39] and Kazepov [40] shows that welfare systems in transition countries, such as the CEE countries, need in-depth reforms to create integrated public services, and at the same time, such changes are taken in the context of financial constraints and with ambivalent consequences. Some of the CEE countries focus on privatisation, while others invest in coordinated market and social policies. In addition, in recent years, these countries have faced significant reforms of

their territorial organisation oriented towards moving away from central regulation towards more decentralised levels. In addition, Klimczuk and Tomczyk [36] have been searching for good practices of technological solutions already implemented at the local level in the CEE countries, such as gerontechnologies and social innovations. The good practices of outdoor spaces, buildings, and housing covered examples of the development of spaces that allow the promotion of physical activity and the adaptation of buildings and housing to meet the needs of older adults, such as the removal of existing obstacles. Some examples of multifunctional buildings have also been noticed, combining spaces for professional rehabilitation, public places for feasts, and kindergartens. Also, examples of the development of smart transportation systems, smart heating networks, remote lighting management systems, and smart traffic control were documented. In the fields of social participation, good practices related to smart solutions to selecting projects for older adults under separate municipal budgets dedicated to non-governmental organisations and the establishment of "senior councils," which are designed to act as consultants and advisory bodies. In the field of public transport, good practices focus on improving communication with older users and making changes in public spaces to favour accessibility to services. One of the most popular solutions in the CEE countries is city cards, which offer older adults discounts for public cultural, sports, and recreation institutions and for private companies that have joined the programme. Such cards are also integrated into the public transportation cards, enabling a surcharge and can act as authorisation for special ticket for multiple trips across all bus lines in the city. In the field of communication and information, the good practices identified e-government systems that enable older adults to receive notifications on their mobile phones about important events, including cultural and sporting events about obstacles on the road, or the status of the resolution of administrative cases. Another example of good practice is an open platform that improves the accessibility of municipal services, with information on public transport, traffic, waste collection, properties available for non-profit organisations, tourist accommodation facilities, cultural events and the system of fault reporting. Innovations for social inclusion concern the activation of older adults in clubs specifically for older people and Universities of the Third Age (U3A). There are also time banks for older adults, which create a group of people who want to provide and exchange services with each other.

2.4 Virtual coaches for older adults' well-being

Lifestyles represent the first level of intervention to allow older people to live healthier for longer. Personalised virtual coaching solutions can enable patients to prevent and avoid a sedentary lifestyle and receive useful and comprehensive long-term coaching. Virtual coaching allows patients to receive advice on nutrition and other lifestyle habits (such as smoking, drinking, drug abuse and others), in line with personal preferences [43]. Virtual coaches are promising tools to deploy automated or semi-automated large-scale interventions to promote healthy lifestyles and support rehabilitation and training in older age, requiring less trained personnel, thus potentially decreasing the cost [44]. Thanks to the continuous monitoring of users' behaviour and well-being status, virtual coaches are able to provide personalised advice through user-friendly interfaces.

Healthy nutritional virtual coaching monitors the user's adherence to nutritional prescriptions and the goals to be achieved. By monitoring the user's meal intake, body weight and weight changes, as well as any concomitant pathologies that the user may

have, these systems allow the creation of personalised nutritional plans, which take into account the user's preferences [45].

Virtual coaching for physical activity is connected to validated devices through which the user records their data (SmartWatch, FitBit, etc.) and receives alerts in case of poor daily activity or excessive sedentary lifestyle [46].

Virtual coaching also helps users manage mental health problems by suggesting behavioural changes and strategies to improve sleep. Virtual coaching is used to improve stress management through meditation, breathing exercises, relaxation and conscious movement [47–50].

The Novel Empowering Solutions and Technologies for Older People to Retain Everyday life activities (NESTORE) is a project funded under the European Union Horizon 2020 Programme (Grant agreement ID: 769643) aimed to design and develop a coaching system to promote well-being among older adults, supported by Internet of Things (IoT) technologies to deal simultaneously with different lifestyles domains, such as physical activity, nutrition, social activity, and cognitive function [51, 52].

NESTORE experts designed a multidomain pathway towards well-being where the e-coach accompanies users in the four domains [53]. This approach implies important behavioural challenges since the user should be engaged in several different activities suggested by the coach and technological challenges. The Health Action Process Approach behaviour change model has been implemented to keep the user motivated, even in cases of difficulties that may hinder the completion of suggested activities [53].

The virtual coach provides personalised tasks that could be carried out to maintain or improve the well-being in the different domains. The NESTORE platform has been co-designed with older adults from four European countries [54]. Also, this process allowed the research team to identify the need to integrate the suggested coaching activities into the existing daily routines. To this purpose, in the NESTORE project, domain experts acknowledged, for example, the possibility of training in the physical activity domain by simply walking faster or walking with shopping bags or training in the cognitive domain by learning something new. From a technical challenge perspective, tracking several domains simultaneously would imply increasing the complexity of the system and the amount of information provided (or requested by the user) through the system interfaces. Conversational agents, possibly embodied in physical devices, may increase the easiness and trust of the system [55]. A lesson learned from the NESTORE project was to introduce part of the system one domain at a time, avoiding overwhelming the user with a plethora of sensors and interfaces and introducing new features and new domains only once the user is acquainted with the rest of the system [55].

3. Emerging obstacles to the adoption of new services

3.1 Customisation tailored to local specificities: the example of mHealth hub

The adoption of innovative approaches to health and care varies across countries [56]. In particular, there is a need for effective business models for the implementation of digital solutions at scale [57]. A single implementation strategy or generic business model for scaling up innovation on a pan-European level will most likely not be successful without adapting technology and services or differentiating business models according to different health and social care systems [58].

The European Innovation and Knowledge mobile Health Hub (mHealth Hub) is a project created by the International Telecommunication Union (ITU), in collaboration with the WHO and the Regional Ministry of Health of Andalusia (Spain), supported by a consortium of 17 public and private partners from 12 European countries, to support the integration of mobile Health (mHealth) programmes and services in the national health systems of European countries [59]. Among the project activities, mHealth Hub produced a knowledge tool (KT2) to identify, collect and organise available knowledge for the iterative development of national or large-scale programmes for the patient empowerment and self-management of type 2 diabetes mellitus (T2DM), supported by mHealth solutions, using a person-centred approach.

An interview with policymakers was conducted to capture the countries' objectives in relation to their mHealth agenda and implementation framework focused on T2DM. Four dimensions were followed: Epidemiology; Risk profile and health promotion; Diagnostic-therapeutic pathways; and Technology readiness. To identify key digital solutions and user scenarios, the Personas approach [60, 61] was adopted to represent the unmet needs of an individual with a T2DM profile in collaboration with country stakeholders. The needs of the identified Persona were declined according to the WHO's framework for self-care interventions [62], noting these functions according to disease codes (ICF codes) for unambiguous identification according to the hierarchical structure of the ICF. An algorithm will provide a relational correspondence between identified needs and available solutions. The proposed approach is iterative and supports a model in which the logical structure leads to a gradual/progressive refinement of possible connections, linking actions, prevention, interventions, and solution models with the particular needs of the personas.

3.2 Knowledge representation in the SHAFE domain

Representing knowledge is one of the most important tasks in the information age. The exponential growth of informative content in several contexts (e.g., Internet, enterprise intranet, mobile devices, and so on) requires intelligent information systems that are able to use data to create information [63]. In complex domains, the use of an ontology learning process [64] is a mandatory task also for lack of formalisation. The definition of such a model would be a valid contribution to solving some issues related to the identification of different dimensions of topic knowledge mosaics and to defining their meanings in a common and shared way. The glossary is used as a starting point for the representation of knowledge with a general ontology model based on linguistic features [65]. The development of an ontology-based model for knowledge representation, one that features universal terminology and basic criteria for information exchange, will allow the comparison of experiences in both cultural and operational contexts.

The NET4Age-Friendly COST Action developed the SHAFE core ontology starting from a conceptual map defined by the previous tasks of the COST Action project. Different domain terms/concepts have been extracted using this conceptual map, and they will be the core concepts of the proposed ontology. The analysed conceptual map is composed of different general concepts, and some of them are specialised and/or related to other concepts. The conceptual map covers all classes related to the main domains of the NET4Age-Friendly COST action. Following the requirements of the COST Action researchers, a first acquisition has been made by the conceptual

map, and a first list of core terms has been extracted from it. These terms have been arranged in a glossary, giving a formal definition to each of them. These definitions have been extracted from WordNet [66], a well-known information source in the knowledge engineering research community. The process of decoding SHAFE knowledge objects demonstrates the need for a new methodology for reading the SHAFE/NET4Age-Friendly domain that takes into account its conceptual evolution and the multi-disciplinarity of this subject. The importance of representing SHAFE with new languages related to this novel cultural approach is thus evident. These languages should allow the user to transmit the complexity of involved concepts and their meanings in the SHAFE context. The ontological conceptual representation [67] has been implemented as a logical knowledge graph [68] using a physical multimodel NoSQL DBMS [69]. The obtained knowledge graph has been exported to OWL following the proposed model. Moreover, the knowledge graph has been drawn using a 3D graph visualisation tool [70] (i.e., Graphia) presented in **Figure 3**.

The iCarer project, which was developed to assist informal carers with the activities of daily care for older adults, proposed a new way of developing an ontology to reflect older adults' care aspects, including agencies and professionals involved, within a real-time home monitoring system so that it captures real-life circumstances and interactions. The methodology incorporates iterative and evaluative stages to ensure the ontology captures implementable interactions and concepts [71]. Ambient Assisted Living (AAL) systems provide IT solutions to enable older people to continue living independently. The European Commission's AAL programme offers a taxonomy within which such systems can be classified in a top-down manner. A categorisation of the systems as a whole has not yet taken place, but this has made it possible to assess their technical parts [72].

OPTImAL is a reusable formal model of factors affecting cardiovascular disease (CVD) patient adherence to physical activity and exercise, developed following the Ontology Development 101 methodology [73] and refined based on the NeOn framework [74]. Its basis relies on the analysis of published evidence and enables the identification of adherence based on the patient profile. OPTImAL describes relations of 320 factors originating from 60 multidimensional aspects affecting CVD patient adherence to physical activity and exercise. The formal model is evidence-based and can support cardiac rehabilitation experts in improving patient adherence [75].
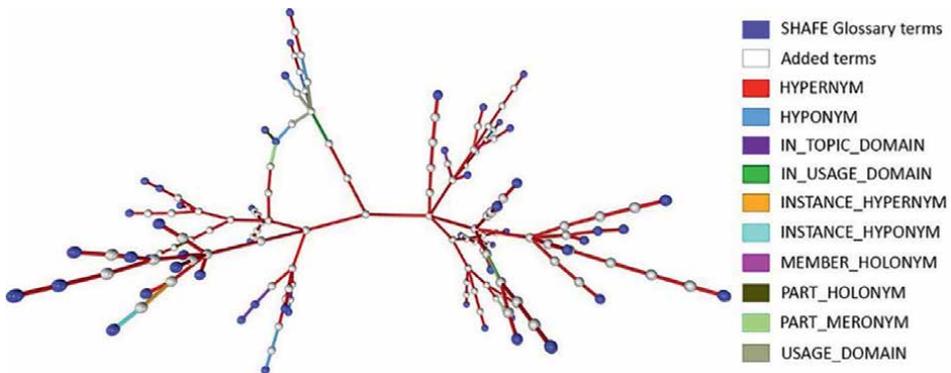

Figure 3.
The Knowledge Graph of the Smart Health Age-Friendly Environments (SHAFE) domain. Source: own elaboration.

3.3 Semantic interoperability of IoT platforms for AHA

Information technologies offer the opportunity to enrich the enormous amount of information available, which can further contribute to supporting the management of older age health, research, and innovation in a multi-sectoral manner. Despite these opportunities, data resources have limited access and interoperability, limiting the full exploitation of potential results, integrative efforts, and long-term reusability. ACTIVAGE is a European project to build an ecosystem for reusing and scaling up underlying open and proprietary IoT platforms, technologies and standards and integrate new interfaces needed to provide interoperability across these heterogeneous platforms. ACTIVAGE provides a set of techniques, tools, and methodologies for interoperability at different levels between existing heterogeneous IoT platforms and an open framework to provide semantic interoperability of IoT platforms for the AHA, addressing reliability, privacy, data protection and security [76].

3.4 Professional training for new skills and new jobs

It is crucial that healthcare professionals develop new skills in evidence-based practice, namely in the field of evidence implementation. Evidence implementation training empowers health professionals to improve health outcomes by providing approaches and tools that facilitate the implementation of the best evidence into clinical practice. Specifically, that training allows the development of skills to lead change, to guide and conduct clinical audits, and to develop continuous quality improvement projects. Thus, evidence implementation training contributes to increasing the levels of compliance of clinical practices with the best available evidence in the different contexts of health care delivery and to train professionals capable of becoming driving forces for the promotion of changes in clinical practice in line with the best evidence available. The International Federation on Ageing (IFA), in partnership with the World Health Organization (WHO), hosts every year a series of webinars on trends and themes relating to age-friendly environments to drive the agenda of the world's ageing populations. The webinar series is aimed at connecting experts and expertise to influence and shape age-related policy [77].

The Joanna Briggs Institute is an international institution that promotes evidence-based practice globally through collaborations with more than 70 institutions across the world. The collaborations inside the Joanna Briggs Institute network help to promote and support the use of the best available evidence to inform decisions made at the point of care, which contributes to closing the gap between research and clinical practice [78]. One of the highlights of this network collaboration is working on funding projects, such as the SPIDER (Strategic Partnership in Innovation and Development of Evidence-Based Healthcare) Project, which brings together 5 European countries with the main goal of fostering the implementation of clinical practices informed by the best evidence to promote effective healthcare that can benefit their users and contributes to alleviating the health economic burden for society.

3.5 Citizen's empowerment for person-centred ICT

Person-centred care is imperative for contemporary healthcare services to assure the sustainability of a future society underpinned by integrated- and citizen-relevant health promotion pathways [79, 80]. According to person-centredness principles, each citizen is a unique being with unique needs who will have as many vulnerabilities

as resources [80]. Within this perspective, the citizen is then an expert in his/her own life experience, which is the reason that warrants the involvement of individuals, families, and communities as co-developers of services, as well as users, according to their expectations, preferences, and values [79].

Translating person-centred principles to the domain of ICT and digital technologies leads to two domains of knowledge: co-design and person-centred care at a distance. Despite the great potential of ICTs to bridge communication and support gaps in healthcare, with a positive impact on both personal, clinical, and organisational outcomes [81], many challenges are still identified in relation to their non-adoption, abandonment, scale-up, spread and sustainability [82].

To overcome such challenges, user involvement has indeed become mandatory for many technological innovations in different sectors, yet very little attention has been given to its epistemic process [83]. Seeing the citizen as a partner demands challenging one's own accommodative perspective, through which science and technology are mere solutions, to consider the importance of designing, developing, testing, and implementing digital technologies that are usable, used, and useful for citizens [84, 85]. Empowering citizens to foster their involvement as partners is therefore crucial to providing sensitive guidance on design features of digital technology that are likely to be most relevant in a particular context for a given population, thereby enhancing its potential for successful and well-accepted implementation [85–87].

Regarding older adults, research carried out internationally in the domain of *Ageing in place* has shown an increase in the supply of digital resources [88, 89]. Specifically, ICT-based platforms that follow a person-centred approach have the potential to improve health and social care services in community settings. Such person-centred ICTs may empower citizens to actively participate in their healthcare and decision-making processes while enabling them to interact directly with healthcare and service providers about their personal health concerns, thereby promoting active ageing [86–88]. Thanks to the use of home automation and the Internet of Things, "Smart Homes" improve the quality of life of older adults and people with disabilities, allowing them to live healthier and more independently and supporting healthcare workers in their care [90]. Home monitoring systems are based on the combination of IT components that collect information from the domestic environment in which the older adult live and the clinical parameters, analysing the data generated by the motion sensors installed in different rooms of the house and the medical devices. Such a system builds, in a certain period of time, a pattern of normal behaviour for each older adult living alone. Sudden and substantial changes from the normal pattern are detected and reported to the caregiver, to verify the actual occurrence of the incident before the emergency procedure is initiated [91].

3.6 Infrastructural interventions: a lifetime home project

Urban spaces, buildings, and housing have long been identified as among the areas of everyday life that most influence the quality of ageing because they may promote the autonomy of older adults, who can remain active and independent even at a very advanced age. Therefore, housing and infrastructural contexts must be characterised by technical, environmental, functional, and spatial qualities, able to support, dynamically, the changing needs and requirements of an ageing population [5].

With reference to living spaces, the concept of the Lifetime Home emerged. The concept was proposed in 1991 in the United Kingdom by the Joseph Rowntree Foundation [92] and then merged in the Lifetime Home Standards [93]. The Lifetime

homes are sustainable housing, where home automation for well-being, autonomy, and safety is now implemented with a multigenerational dimension, conceived to foster independence and quality of life for individuals of all ages and abilities without compromising aesthetic value or cost-effectiveness of accessible, flexible, and affordable architectural and infrastructural solutions [94]. Built examples of Lifetime Home may be seen in London, such as Darwin Court, in Southwark; Lingham Court in Lambeth; Prices Yard in Islington [95].

The design programme aimed at converting the brutalist building Centro Polifunzionale Piscinola-Marianella, located in the north area of Naples (Italy), into a multigenerational lifetime house, is an example of this model of dwelling, proposed by a multidisciplinary team of University of Naples Federico II. Here, new functions of social care and multi-ageing living are integrated within the regional health chain, primarily referring to the older population and to the vulnerable users from a life course perspective [96]. Moreover, the project is consistent with the need to be climate and pandemic-proof to fit in the urban context as an infrastructure for environmental protection, in the knowledge that this qualification is a primary factor for the health of the older population [96].

4. Enabling innovative approaches by improving stakeholders' engagement

4.1 Digital literacy

Although digital literacy has been handled in various ways by different academics since it was introduced, one of the descriptive definitions of this concept has been put forward by the European Information Society [97]. They defined digital literacy as the awareness, attitude, and capacity of individuals to utilise digital tools and facilities correctly to find, access, manage, integrate, evaluate, analyse, and synthesise digital resources, construct new knowledge, produce media expressions, and connect with others in the context of specific life situations, in order to allow constructive social action; and to reflect on this process.

With the increasing dominance of digitalisation in society and academia, it has begun to be thought that technology creates new possibilities. For example, enabling individuals to have access to and use the Internet and related digital technologies, referred to as "digital inclusion," has far-reaching advantages for individuals, the economy, and society. It has even led to opinions that this situation will result in the participation of disadvantaged groups, such as older adults, in society. If older adults become digitally included, this inclusivity can help them maintain their independence, social connectedness, and sense of worth in the face of declining health or limited capabilities and offer new opportunities to improve their quality of life.

However, access to technology and benefits is not now dispersed equally within or within nations, and older people tend to be on the "wrong" side of the opportunities [98]. Urbancikova et al. [99] revealed that as the age of the individuals increased, their digital literacy skills decreased. Tsai et al. [100] emphasised that the barriers experienced by older adults are due to physiological (e.g., the speed of learning and memory) and intersecting socioeconomic (e.g., education status and income) characteristics and despite these difficulties, the motivation of older adults does not disappear and that existing barriers can be overcome with guidance, especially with support for technology use and practical daily practices.

4.2 Identifying and communicating added value

Technological development and digitisation provide an opportunity to increase the effectiveness and efficiency of health and social care systems in several ways. New tools provide the opportunity to foster innovation in existing organised systems and processes through various forms of automation. Digitalisation is facilitated by the clear definition of activities and work. Identifying the parts of the processes allows for the implementation of digital solutions that are truly consistent with the needs and achieve a high impact in terms of speed, quality, or cost [101, 102].

In economic and operational terms, the choice of what to implement and where can be facilitated by the possibility of using existing digital tools that can be adapted to particular and local conditions [103]. In particular, routines and data-based activities can be more easily improved and made more efficient, especially if significant volumes of activity are involved due to economies of scale. All of this is possible, however, if effectively designed within a framework of integrated organisational change. So, identifying the added value of the digital transition lies primarily in analysing the potential benefits but, more importantly, the avoided costs that enable a reallocation of financial resources more consistent with the expressed needs of communities. The ability to communicate added value depends on the careful analysis of the impact of organisational changes and digital transition and the building of collaborative ecosystems for innovation involving key stakeholders that, in addition to building effective internal communication models, have the necessary "political" strength to be able to make innovation implementable on a large scale [104].

The WHO's Age-friendly World (AFW) is a public portal providing a one-stop-shop for age-friendly action at the local level. Age-friendly World creates a place for citizens, policymakers, and organisations to share what they know and learn from others. AFW is an initiative of the Global Network for Age-friendly Cities and Communities [105]. The Ageing and Health Technology Watch (AHTW) provides market research, analysis and guidance about health and ageing-related technologies and services to enable older adults to sustain and improve their quality of life. AHTW advises technology vendors, service providers, businesses, and non-profits about trends and opportunities in the age-related technology market [106].

4.3 Broader communication towards communities

Older people consider participation in society as one of the most important features of life. Those older people who have fewer digital skills or are digitally illiterate feel increasingly excluded from society with the ongoing and unstoppable digitalisation of every single part of society. Digital participation is seen as of the utmost importance. Learning new skills in older age, however, is difficult unless the training meets the needs and interests of older people themselves.

To improve policymaking for the Age-friendly City The Hague in The Netherlands [107], The Hague University of Applied Sciences and AFEdemy, in combination with several organisations of the Knowledge Platform [108], developed the Age-friendly Cities and Communities Questionnaire (AFCCQ) [4]. This questionnaire consists of 23 questions that measure the perceived age-friendliness of a city or community by older people (65+) themselves. The questionnaire is being translated, culturally validated, and applied in countries like Poland, Romania, Turkey, and Portugal. With the results of the AFCCQ, focus group meetings are organised to qualify the outcomes of the questionnaire and to present the needs expressed by older people to local policymakers.

Governments increasingly turn to offer their products and services digitally. To avoid (older) people not being able to make use of these products and services themselves, training and support are essential. One example of successful training of older people is the Erasmus+ project Bridge the Gap! [109]. In this project, 60 older adults of 64–85 years were trained in a sequence of six workshops. The training successfully combined the SHAFE concept with learning and practising digital skills on smartphones and tablets. In training, older people learned what SHAFE is, discussed its importance for them, and which barriers they experience. For example, access to personal health records and health insurance is only feasible if people have a so-called digital identification code (DigiD) [110]. Trainees learned to instal and use DigiD on their smartphones. Learning to participate further digitally includes access to social networks, communication with e-Governments and applying eHealth approaches to support active and healthy living. One year after the training, trainees still consider it successful because of its pragmatic approach.

5. Discussion

Smart healthy age-friendly environments (SHAFE) enable innovations to boost health and well-being. Many efforts are being undertaken at locoregional, national and international levels to develop, adapt, transfer and implement SHAFE: sharing knowledge is a key accelerator for deployment. Successful examples of co-creation, living environments initiatives and digital skills training are being described to support innovation in the lives of citizens and the health and well-being domain.

On the other hand, it is still a challenge to realise SHAFE. Its holistic approach demands much dialogue and consultation between different stakeholders. It is not always obvious what the return on investments is and who benefits. Policymakers play an important role as facilitators in the realisation of SHAFE; however, they must be convinced of the benefits of investments in the longer term, where policymaking often reflects the delusion of everyday life [111]. Towards this purpose, efforts should be carried out to increase the use of research in decision and policymaking. WHO has been recognising for a long time the relevance of evidence-informed approaches to policymaking to improve its effectiveness, efficiency, and equity, but we are still far from integrating such approaches in our innovation ecosystems. WHO's conceptual structure for a more comprehensive and integrated approach provides outstanding guidance to create and apply evidence for a measurable improvement in public health. This is especially important considering the need for coherent and coordinated intersectoral and multilevel planning to impact population health. Indeed, construction and housing organisations should accelerate their efforts to evolve the built environments according to the emerging individual and collective needs of citizens. Health and well-being sectors should improve their digital skills and strengthen a comprehensive and person-centred approach. Citizen empowerment should be developed on the ground of digital skills and capacity in terms of accessibility. Robust evidences are required to scientists, focused deriving from the implementation of innovative methods and solutions for disease prevention, health promotion and integrated health to support the impact measure of SHAFE approach.

Available evidences described in this chapter show that only a strong interplay of actors makes SHAFE a success story.

In Central and Eastern Europe (CEE) countries, it was observed [36] that activities undertaken in relation to implementing smart and age-friendly cities

and communities are mostly targeted at strengthening intergenerational solidarity, enabling citizens to mutually invest in each other, and sharing achievements in accordance with the principles of reciprocity and equality. The study by Klimczuk and Tomczyk [36] also underlined the need to create more integrated theoretical approaches to social and technological innovation associated with ageing in cities and communities. Moreover, the scholars [36] suggest more in-depth studies of organisations of older people that focus on the dissemination and implementation of innovations and identifying their barriers in relation to the development and impact on the ageing policy. Also, there is a need [36] to continue comparative studies of various implementations of the concept of smart and age-friendly cities and communities in relation to well-known typologies of the welfare state and diverse models of the development of the silver economy.

6. Conclusions

A growing body of discourse and narrative surrounds the Age-friendly Cities and Communities domain, with various frameworks and concepts being proposed to enhance the understanding and development of inclusive and technologically advanced environments. These include the Smart Age-friendly Ecosystem (SAfE) framework and the Concept of Age-friendly Smart Ecologies (CASE) framework, which emphasise the role of technology and the interconnectedness of physical spaces.

Furthermore, the importance of co-creation, intergenerational living, and the integration of affordable technologies is highlighted to address the evolving needs and challenges of older adults. The introduction of terms like Transgenerational Living Communities and Cities (TLCC) and Smart Health Age-Friendly Environments (SHAFE) further expands the vision for future societal ecosystems that promote health, well-being, and connectivity. Initiatives such as the SHAFE thematic network and the Covenant on Demographic Change aim to foster collaboration.

Therefore, innovative approaches to health, including the exploration of environmental determinants of healthy ageing, the development of age-appropriate living environments, socio-technological solutions for smart, age-friendly cities and communities, and the use of virtual coaches for older adults' well-being, offer promising strategies to optimise well-being and improve the quality of life for older populations.

In conclusion, this chapter describes SHAFE experiences and highlights several emerging obstacles to the adoption of new services in the healthcare domain. These obstacles include the need for customised solutions tailored to local specificities, effective business models for the implementation of digital solutions, knowledge representation in complex domains, semantic interoperability of IoT platforms, professional training for new skills, citizen empowerment for person-centred ICT, and infrastructural interventions for ageing populations.

Additionally, this chapter emphasises the importance of digital literacy and the need to identify and communicate the added value of technological innovations in healthcare. By addressing these obstacles and engaging stakeholders effectively, the successful adoption of innovative approaches in healthcare can be achieved, leading to improved outcomes and a higher quality of life for individuals.

SHAFE communities have been driving the evolution towards a different approach to health service provision, that is proactive and anticipatory, and brings together the variety of elements and drivers that impact on the complex and interconnected mechanisms determining ageing trajectories.

Several challenges ahead of us lie in data sharing and secondary use of data across domains and repositories, in ethical, responsible, valuable and trusted use of AI, in citizen empowerment, and in organisational flexibility, among others.

Collaborative approaches are pivotal to ensure that knowledge and tools exchange are developed coherently and consistently. NET4Age-Friendly is an extraordinary example of successful collaborations across disciplines and organisations. Following through with new business models is our next challenge.

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Conflict of interest

The authors declare no conflict of interest.

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Chapter 10

The Multidimensional Concept of Aging: Addressing Challenges and Enabling Participation in an Aging Society

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Abstract

As societies around the world face the challenges of aging populations, it becomes essential to explore the period of aging and identify opportunities and support mechanisms within the national framework. This article discusses the challenges faced by various professions in engaging older people in their daily activities and highlights the importance of providing options for local community support. By receiving daily assistance, older people can continue to actively participate in meaningful activities despite the limitations that come with age, illness, or injury, thus maintaining their sense of self-worth and ensuring a secure home environment. This multidimensional approach involves collaboration among formal and informal caregivers from diverse disciplines to enable older adults to age in place and live independently in their communities for as long as possible. While this approach brings immense benefits, it also presents unique challenges for all stakeholders involved in the care of older people.

Keywords: older adults, healthy aging, participation challenges, interdisciplinary collaboration, home environment

1. Introduction

Aging is an inevitable and natural process that occurs throughout our lives. It is a fundamental part of the life cycle, starting from birth and continuing as an ongoing process. As we progress through different stages of life, we undergo physical and psychological changes that shape our identity and individual growth. However, many individuals struggle to embrace these changes, particularly during the later stages of life. Therefore, it becomes crucial to adequately prepare for the challenges and opportunities that come with this phase.

The transition from an active working life to retirement is a critical period that calls for contemplation and planning for the future. Age-related health issues can arise unexpectedly, leaving individuals unprepared and vulnerable. Lack of knowledge about available resources and support systems in their local environment can lead to temporary, social, and material distress. It is important to acquire knowledge

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about potential solutions to address the basic needs of the older people, both for their own well-being and to ensure a smooth transition into the later stages of life.

Caring for the older people is a concept deeply ingrained in our society. However, the urgency and significance of this task may be better understood by those directly experiencing the less favorable aspects of aging, as opposed to policymakers who often delay and legislate older people care decisions.

The desire of older people to age gracefully within the comfort and security of their own homes is becoming increasingly vocal. Often, economic circumstances prevent them from living in a dignified manner within institutionalized settings. While financial factors contribute to this decision, it is not the sole determinant. Moreover, it affects the dignity of the older people that has enriched society with their knowledge, shared valuable experiences with younger generations, and served as a wellspring of wisdom. Among the positive aspects of aging within familiar surroundings, the warmth and familiarity of one's own home hold significant importance. We firmly believe that every individual should have the right to spend their later years in a home environment.

The challenges posed by modern society have brought the issue of aging to the forefront, along with its associated needs and characteristics. It is undeniable that society is experiencing a demographic shift toward an aging population, presenting a growing concern about how to effectively address this challenge and involve all stakeholders in the process. However, proposed solutions that may seem reasonable independently may not be viable due to economic consequences or impacts. As we address these challenges, it is essential not to forget that meeting the basic needs of an aging society, in the face of environmental challenges, is crucial for maintaining social integration and facilitating daily living activities.

The purpose of this paper is to answer the research question of what the multidimensional concept of aging entails and to highlight possible intergenerational solutions from the author's perspective.

The paper highlights individual important areas that can make a significant contribution to enabling aging at home, focusing on the integration of intergenerational relationships. A brief numerical overview of the current state of the aging population provides a starting point for understanding the importance of enabling and ensuring integration in daily activities for aging at home. The context in which older people live provides both enabling and inhibiting factors for living at home, both in terms of environmental challenges and those arising from individual and social circumstances. In the conclusion itself, we summarize the dilemmas highlighted and address the limitations and opportunities for further research on this topic.

1.1 Aging through numbers

The statistical data provided by the World Health Organization (WHO) [1] are indeed alarming, as it reveals that the proportion of the global population over 60 years old is expected to nearly double, from 12–22%, between 2015 and 2050.

The advent of the COVID-19 pandemic presents an unexpected period that will likely have significant implications on societal longevity. Recent data on life expectancy [2] indicate that Spain (83.3 years), Sweden (83.1 years), Luxembourg, and Italy (82.7 years each) have the highest life expectancy at birth in Europe, while Bulgaria (71.4 years), Romania (72.8 years), and Latvia (73.1 years) have the lowest.

A study conducted by a researcher from the Jefferson School of Population Health [3] examined and compared life expectancy trends in Europe and America.

The research findings suggest that life expectancy in the United States has seen a significant increase over the past century. Currently, the average life expectancy for American males is 73.2 years, while for females it is 79.1 years. In contrast, data from comparable countries in Europe show an average life expectancy of 80.0 years for males and 84.7 years for females in 2021.

Traditionally, it is well known that women tend to outlive men by approximately 5 years. However, this gender disparity in life expectancy has remained relatively stable. Nevertheless, the study proposes that the lifestyles of women have undergone noticeable changes in the late twentieth and early twenty-first centuries, leading to potential impacts on life expectancy. These changes primarily include increased smoking habits and heightened stress levels experienced by women.

1.2 Method

A review of relevant literature from the last 10 years using the checklist is provided by Prisma, using the Boolean operators AND and OR, using the following keywords and phrases: social challenges, environmental challenges, gerontology, longevity, supportive factors, home living environment, older adults, healthy aging, and intergenerational support.

The results of the thematic analysis of the selected papers were grouped into three main themes, with subthemes representing our factors or the substantive strands of the work: promoting healthy aging to enable intergenerational relationships; enabling participation in daily activities; context; environmental, personal, and social challenges.

2. Promote healthy aging to enable intergenerational relationships

Healthy aging is a comprehensive scientific concept that addresses the physiological changes and processes associated with aging, with the primary goal of promoting overall well-being and health in later life. This approach encompasses a wide range of factors, including biological, psychological, and social aspects, and aims to identify effective strategies for maintaining health and functionality as we age. Both objective measurements and subjective perceptions are considered when assessing health in the context of healthy aging [4].

The concept of successful aging, which emerged in America half a century ago, has significant implications for funding programs that recognize older people as capable and valuable members of society who can actively participate in various aspects of life. This view emphasizes the importance of maintaining physical and cognitive activity and promoting active participation in activities of daily living (ADL). The decline in functional abilities is seen as a change in older people's own actions that exemplifies successful aging. Extensive discussion and research in the field of gerontology has contributed to the development and study of the model of successful aging.

Successful aging is often equated with healthy aging and consists of three core elements: a low likelihood of morbidity or disease, well-preserved physical and mental functioning, including cognitive abilities, and active participation in daily activities [5]. These elements are interrelated and complementary, providing a comprehensive understanding of the concept of successful aging.

In addition, the concept of active and independent aging, also referred to as "aging at home" or "aging in place," has received considerable attention in research

programs, strategic plans, and action plans. This perspective underscores the importance of older people's autonomy in deciding where and with whom they live and how they go about their daily lives. Independent living requires an accessible built environment, adequate transportation, availability of technical and medical aids, accessible information channels, and support services. These factors play a critical role in creating an environment that promotes active and independent living for older people in their communities [6, 7].

Promoting healthy aging to facilitate intergenerational relationships has been extensively documented scientifically and has numerous benefits for both older people and younger generations [8]. Research strongly suggests that promoting interactions between people of different ages has positive effects on individual well-being and strengthens social cohesion. Specifically, intergenerational emotional support has been linked to improved cognitive health in older people [9]. These meaningful relationships not only reduce stress in older people but also provide a sense of importance and attention, which promotes well-being and cognitive health.

Intergenerational relationships, whether characterized by conflict or solidarity, can have a powerful impact on an individual's physical, mental, and social health. Relationships in which intergenerational conflict occurs have the potential to generate ageism, both self-directed and external. Ageism toward and among older people is associated with negative health outcomes, such as lower quality of life, early death, slower recovery from disability, depression, social isolation, loneliness, and overall poorer physical and mental health [10].

Intergenerational relationships provide cognitive benefits for both older and younger people. Older people experience mental stimulation through the sharing of knowledge and experiences, while younger generations gain valuable wisdom and insight from older people.

From a public health perspective, intergenerational programs can play an important role in maintaining cognitive health. Such programs accomplish this by promoting greater social interaction, physical activity, and cognitive engagement, often through a naturalistic approach that encompasses multiple domains [11].

Positive social interactions, particularly those that are intergenerational, are associated with improved physical health in older people. These interactions are associated with lower stress levels, improved immune function, and even increased life expectancy [8].

Promoting healthy aging and enabling intergenerational relationships are supported by solid scientific evidence that underscores many benefits to individuals, families, and society as a whole. Fostering such relationships can lead to a harmonious and supportive community where people of all ages are valued and celebrated.

To achieve healthy aging, researchers and health professionals are focusing on interventions and strategies that target the various aspects of aging. These include lifestyle changes such as regular physical activity, balanced diet, and adequate sleep, which have been shown to improve overall health and reduce the risk of chronic disease. In addition, cognitive training programs and social support interventions can be implemented to maintain mental well-being. In addition, preventive measures such as regular screenings and immunizations are essential for early detection and treatment of age-related health conditions.

Healthy aging is a multidimensional concept that involves understanding and addressing the biological, psychological, and social changes that occur with age. By promoting optimal health and functionality in later life, healthy aging aims to improve older people's overall well-being, quality of life, and intergenerational relationships.

3. Enabling and enhancing participation in everyday life occupations for aging in place

One of the key considerations regarding longevity is the choice of caregivers for older individuals who wish to age in place within their own homes. Understanding their preferences and relationships with existing providers of daily living assistance can offer valuable insights for planning services and interventions from a user-centered perspective. Experts and researchers in the field of aging consistently emphasize that older people desire to age at home. Numerous approaches can facilitate this aspiration. For instance, there are four primary sources of assistance for older adults' care: formal institutional care, public home care services, support from family members or other informal caregivers, and informal caregiving, where family members assume responsibility for looking after their elderly relatives [12].

Legislation and local policies play a crucial role in supporting and providing different forms of care for older people. Establishing measurement tools (entry thresholds) to allocate support resources and infrastructure can contribute to the care pathway [13]. Furthermore, a national care model can foster intergenerational care for older adults and facilitate the involvement of relatives, regardless of their kinship.

Given the evolving nature of family structures in society, characterized by fewer traditional families, it becomes even more critical for the state to provide informal care for its citizens who have contributed to the development of the society in which they now spend their later years. This care can come in the form of financial compensation, income replacement, bridging social security gaps, or simply by conveying a socially recognized, honorable moral value.

Aligning with national initiatives in aging and age-related disease research, it is vital to promote international collaboration and resources to strengthen various research domains and enhance decision-making processes and initial strategies. International and developmental activities rooted in the interdisciplinary field of age-related research at the national level, supported by clinical research on age-related diseases, health services, and strategies, should be pursued [14]. The primary focus of such research efforts should be on preventing, managing, and treating age-related diseases, while improving public support and health services for older adults. Nationally funded projects tend to be clinical research-oriented, intended to promote active aging.

It is worth noting that different countries exhibit varied potentials for formal and informal care due to socioeconomic status [13], cultural or spiritual values, and gender disparities in caregiving involvement. Analysis of data collected from the Survey of Health, Aging, and Retirement in Europe (SHARE) [15] in 17 countries reveals that women often bear the responsibility of providing care themselves, while men share caregiving duties, and others outsource care entirely. In most cases, partners and spouses are the primary caregivers, with the burden often falling on women. Informal family assistance is most prevalent in Portugal, Italy, Spain, and Poland, while informal help from outside sources is more common in Mediterranean and Eastern European countries. Formal external assistance is highest in Switzerland, Belgium, Luxembourg, and Poland.

The scope of human activity is narrower than activities of daily living (ADL). ADL refers to the essential skills needed for self-care, which are divided into several subsections: bathing, feeding, dressing, toileting, and mobility. The inability to perform ADLs can lead to dependence on others or the use of assistive devices, impacting an individual's quality of life [16].

Instrumental activities of daily living (IADL) include tasks such as using the telephone, shopping, meal preparation, housekeeping, laundry, community mobility, and medication management. ADLs and IADLs are particularly significant for older adults, as they encompass intimate aspects of self-care and play a vital role in maintaining independence and well-being [17].

For instance, an older lady might aim to establish a routine that incorporates personal hygiene activities, such as brushing teeth, washing face, applying lotion, combing hair, and getting dressed. Maintaining such habits is advantageous for promoting healthy behaviors and overall well-being. Habits tend to persist, even in the face of external stressors, making them more likely to be maintained than non-habitual behaviors [18].

Research indicates that old men typically require more assistance with ADL compared to old women [19]. Among ADLs, bathing and controlled elimination of urine and feces tend to require the most assistance, followed by toilet use, walking, dressing, transferring, and grooming. Notably, the majority of older people (95.7%) can independently feed themselves. In terms of IADLs, assistance is most needed for laundry and shopping, followed by housekeeping and neighborhood mobility [20].

The ability to perform ADLs is crucial for older individuals to maintain their independence and age in place. When assistance is required for ADLs, individuals are more likely to be institutionalized [21, 22]. Therefore, maintaining independence in ADLs is essential for older adults to continue living in their own homes.

In conclusion, understanding and promoting activities of daily living, such as ADLs and IADLs, are important for maintaining independence and well-being in various populations, particularly in older people. Further research and interventions focused on supporting and enhancing these activities can greatly benefit individuals' quality of life.

A study conducted in New Zealand on aging at home has found similar results to previous research, showing that a majority of older people require some form of assistance with tasks like transportation, meal preparation, and shopping [23]. Studies from Sweden [24, 25], Canada [26], and various European countries [27] have also discovered that older people require more assistance with IADLs compared to ADLs. Cultural context and environment play a significant role in the performance of IADL activities, as even healthy older adults may require more time to complete them [28].

Providing support with IADLs is generally easier through informal networks than assisting with ADLs, which often require involvement from external health agencies [23, 29–31]. Moreover, ADL performance is often linked to a person's immediate safety and physical well-being, making it a priority [32]. While family members can assist with IADLs, professional services should be available for ADLs when needed [33].

In Slovenia, a survey revealed that older individuals who received assistance primarily relied on unpaid helpers such as family members, aligning with previous findings in the country [34–36]. Regardless of their living situation, participants' preferred informal caregivers, and statistical analysis showed that the current and preferred providers of assistance often matched, suggesting an isomorphic relationship. Among formal care providers, district nurses, paid carers, and occupational therapists were strongly preferred. In the Slovenian healthcare system, district nurses provide medical care, paid carers assist with ADLs, and occupational therapists promote general independence. This suggests that these are the specific needs older individuals prioritize, and they should be considered when planning home-based services. The fact that the actual providers of care were often the preferred option could positively impact older people's psychological health and well-being.

"Promoting health, well-being, and active engagement in daily activities through occupational therapy" is a statement that encompasses the domain and process of occupational therapy. Therefore, occupational therapists can be considered formal caregivers, given their specialized training. In this context, the following topics are relevant to the work of occupational therapists in providing care for older people.

When examining different theoretical models such as the American [37], Canadian [38], and Slovenian [39] models, it becomes evident that occupational therapy for older adults follows a process-oriented approach that is grounded in occupation and supported by evidence-based and client-centered practices. These frameworks assist professionals in various settings, including working with individuals, families, groups, or populations.

In this article, we will explore elements of the Canadian [38], American [37], and Slovenian [39] models. Each model emphasizes the selection of essential needs, care arrangements, and independent performance of daily activities. For occupational therapists, enabling older people to engage in meaningful occupation is both a means and an end in the therapy process.

The American Occupational Therapy Practice Framework [37] places emphasis on intervention, including the therapeutic use of self and activity. The goal of therapy intervention is to facilitate satisfactory progress in activity performance. Occupational therapists provide interventions that encompass a variety of activities and occupations to improve motor skills and promote independent engagement in activities of daily living. These activities encompass personal care, instrumental tasks, health management, rest, visual impairment, education, work, play, leisure, and social participation. The assessment and treatment of activity participation involve evaluating the skill level, performance patterns, environmental context, task demands, and individual factors. Motor, procedural, and interactive skills are assessed, and activity patterns consider an individual's habits, roles, and routines. Furthermore, the impact of contextual factors, activity requirements, and individual characteristics on activity performance is taken into account. The Canadian practice process framework [38] aligns with the Canadian Model of Occupational Performance and Engagement (CMOP-E) [38]. This framework consists of three main components: initial assessment, treatment delivery, and outcome assessment. It illustrates the dynamic interaction between the therapist and the client, focusing on activity performance within specific contexts. The Canadian practice process framework is a versatile tool that enables occupational therapists to work effectively with a diverse range of clients. From a therapeutic and skill-building perspective, it serves as a catalyst for therapists to help clients achieve their aspirations and goals related to occupation. This framework guides occupational therapists through an evidence-based, occupation-centered, and client-centered treatment process aimed at fostering occupational competence and professional engagement.

In Slovenia, a model [39] for health management of older adults performing daily activities in the home environment is based on a spiral model that involves citizens, formal and informal caregivers, and policymakers. This model recognizes the importance of collaboration among all stakeholders to ensure holistic care for older people.

In conclusion, these models provide a comprehensive foundation for occupational therapists working with older adults. By utilizing evidence-based and client-centered approaches, occupational therapists can help older people achieve health, well-being, and active participation in their daily lives.

Home care for older individuals is a complex endeavor that requires effectiveness in addressing their health and social needs. One potential solution to this challenge

is the implementation of the spiral model from **Figure 1** within an interdisciplinary team. By incorporating informal caregivers into the team, a multidisciplinary approach can be adopted to maintain the independence of older individuals in their daily activities, taking into account their specific needs and psychophysical health status. This model from **Figure 1** integrates formal professional competencies of the multidisciplinary team to provide care in the home environment, while also offering preventive advice on the functional design of the home and appropriate support and education for family members. The utilization of assistive technologies, such as medical devices, electronic systems for home control, and communication technology, is also considered as part of this comprehensive treatment approach.

Stakeholders in the health and social sectors who share common goals in improving quality of life organize and collaborate through project management processes. This involves iterative phases and process improvements, allowing each stakeholder to form a continuous spiral that incorporates the six spatial fields (A through F) of the modified Boehm model (communication, planning, risk analysis, design, implementation in practice, and evaluation) at each level. A national care model can also facilitate intergenerational care for older people by involving family members, regardless of their specific familial relationships.

It is important to note that informal care should only supplement formal forms of care and not act as a replacement [13]. Both types of support should aim to maintain independence in daily activities that individuals are capable of performing.

To illustrate the practical application of models and their elements in supporting older individuals to age in place, consider the case of a 79-year-old man who suffered
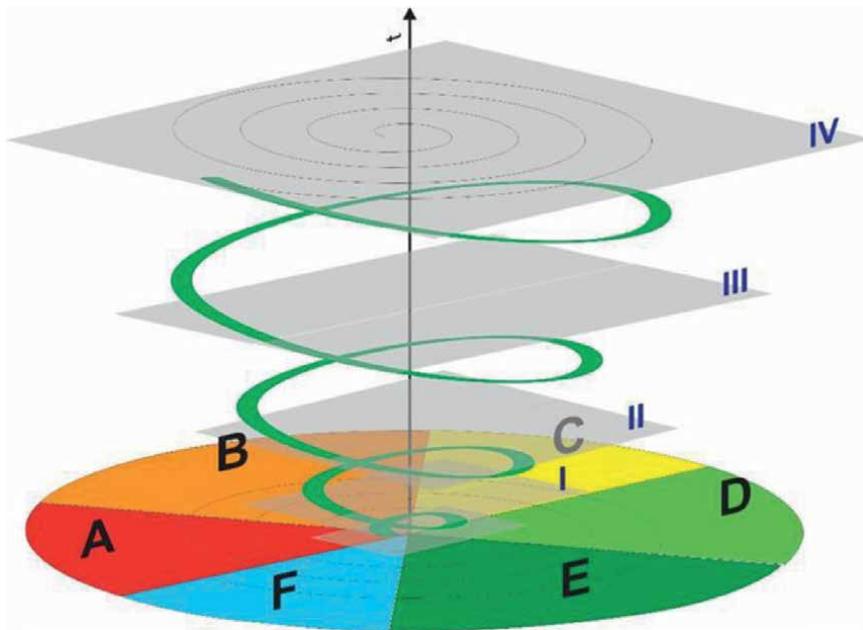
Figure 1.
A community-based care process model of aging in place characteristic. Typical areas (A–F) and levels (I–IV) of the spiral model, adapted to LTC needs (A—Communication with potential users, B—Planning, C—Risk analysis, D—Design, E—Implementation in practice, F—Evaluation, I—Concept development project, II—New product development project, III—Product growth project, and IV—Product maintenance project). Source: Own elaboration.

a hip fracture from a fall outside his home. After the operation, his daughter cared for him in his home environment within an intergenerational relationship, with the help of a physiotherapist and an occupational therapist. Their expertise helped him manage his daily activities independently. Formal caregivers focused on exercises to improve hip joint mobility, strengthen muscles in the lower and upper limbs and trunk, and gradually integrate the use of walking and mobility aids. The occupational therapist concentrated on activities of daily living such as getting up, dressing, and personal hygiene. The daughter received instruction from the formal caregivers on appropriate care strategies. Through the integration of formal and informal resources, progress was made, and the gentleman was able to engage in independent daily activities.

4. Contexts as environmental challenges

According to the World Health Organization [40], the environment includes the home, the community, and society more broadly, as well as all factors within these contexts. This broad definition includes the built environment, interpersonal relationships, attitudes and values, health and social policies, support systems, and services provided. However, certain situations, such as ongoing wars like those in Ukraine or pandemics like COVID-19, can deviate significantly from the ideal context for healthy aging. This highlights the importance of living in an environment that supports and sustains human capabilities and function—an opportunity that has been denied in several historical and contemporary challenges, including the World War era II.

The intergenerational relationships individuals maintain with their environment are influenced by a variety of factors, including the family into which they are born, gender, ethnicity, education level, and financial resources [40]. These factors shape individuals' experiences with their environment and contribute to their overall well-being and pathway to healthy aging.

The concept of context encompasses a variety of factors that significantly influence an individual's life. Factors such as satisfaction with basic life activities and personal freedom are often associated with the home environment, which is highly valued in the individual's value system. The home environment also provides individuals with the opportunity to assume various roles associated with aging, which increase in importance and prestige over time. As people age, they gain valuable life experiences and stories that are invaluable. Throughout our lives, we take on various roles and activities that become more important as we age. During this phase of life, we spend much of our time at home [41]. A positive home environment provides older people with a sense of security, privacy, and relaxation and facilitates their participation in activities they enjoy [42, 43].

More broadly, the construct of context includes both environmental and personal factors. Environmental factors include aspects such as the natural environment, human-induced environmental changes, products and technologies, support systems and relationships, attitudes, services, and social systems and policies. Personal factors, on the other hand, are individual and include elements such as customs, beliefs, activity patterns, behavioral norms, age, race and ethnicity, cultural identification, social background, education, lifestyle, and health status [37]. The interaction between these combined factors plays a critical role in shaping an individual's experience of his or her environment and significantly influences his or her overall well-being and healthy aging.

Understanding the impact of the various contexts and environmental conditions is critical to promoting healthy aging and developing effective strategies to support the well-being of older people. By addressing these factors, we can create environments that foster intergenerational relationships and enable individuals to age gracefully with optimal health and functionality.

4.1 Environmental challenges and interventions for aging at home

Environmental factors play a critical role in shaping a person's life and include physical, social, and relational dimensions [38]. The World Health Organization [40] defines these factors as external elements that significantly influence overall well-being. In the context of interventions for aging at home, understanding and incorporating environmental issues is essential for effective care and support. This paper explores the various dimensions of environmental factors and their impact on professionals, formal caregivers, clients, and intergenerational relationships.

Environmental factors and their categorization include the following contexts [37]: cultural, physical, social, personal, spiritual, temporal, and virtual.

Cultural norms, customs, beliefs, and patterns of behavior influence a person's identity and daily activities and are often passed down through generations.

The physical environment consists of both the natural environment, which is influenced by seasonal changes and living organisms, and man-made elements such as buildings and infrastructure [44].

The social environment includes the people, groups, and relationships that individuals interact with and belong to, which affects their support networks and community engagement.

Factors such as age, gender, socioeconomic status, and educational attainment contribute to the individual's unique experiences and perspectives in their environment.

Spiritual context is based on religious or ideological teachings and reflects the individual's relationship to the sacred and includes personal actions and rituals practiced in religious communities.

Temporal elements such as daily routines, historical periods, and the timing of activities influence the individual's experience of his or her environment.

Modern technologies such as smartphones and computers are increasingly integrated into everyday life and provide opportunities for intergenerational relationships as younger people share their technological knowledge with older people.

Professionals, including therapists and formal caregivers, play an important role in creating appropriate living environments and implementing preventive measures. Comprehensive environmental assessments, conducted by trained community services staff, help identify fall risks and assess an older person's functional abilities in their environment.

Home environments can be adapted based on three principles: universal design, assistive technology, and remote monitoring networks. Assistive devices such as information and communication technology (ICT) help to reduce barriers and simplify tasks for older people so that they can feel comfortable in their homes [45, 46].

Environmental factors that influence the professional relationship between formal and informal caregivers and older people emerge in social and contextual practice. Collaboration and open dialogs are critical to ensure positive interactions and promote the development of intergenerational relationships [47].

Understanding and addressing environmental issues are essential for effective home aging interventions. By incorporating the concept of "big hands guiding little hands," an environmental education system can promote positive intergenerational relationships and support healthy aging at home [47]. Together, these efforts help create a supportive environment for older people and promote a sense of autonomy, independence, and well-being.

4.2 Personal factors challenges in older people: implications for physical activity and independent living

Personal factors challenges refer to the difficulties or obstacles that individuals may face in relation to their personal characteristics, abilities, or circumstances. These challenges can impact their ability to engage in certain activities or achieve desired outcomes. Examples of personal factors challenges may include physical limitations, cognitive impairments, emotional barriers, lack of knowledge or skills, conflicting values or beliefs, and low self-efficacy. These challenges can affect the individual's participation in various contexts, including professional relationships, and may require additional support or interventions to overcome.

When a user enters the context of practice, whether it is an individual, family, or group entry, both the formal caregiver and the user bring their personal resources, knowledge, abilities, skills, habits, values, beliefs, and relationships into each interaction. Thus, the experiences of both will be included in the context of practice, influencing the process of treatment, the content of the relationship, and the course and conclusion of their professional collaboration. Although personal factors are listed under environmental factors in the WHO's framework [48], they are not classified in detail precisely because of their social dimension and cultural breadth. The personal aspect is classified as capacity, consisting of cognitive, emotional, and physical abilities; skills and knowledge; and mediators for motivation/interests, significance, and self-efficacy. Personal factors also include the shared experiences of a group or individual with family members. Examples of personal factors at the community, organizational, or population level classify shared experiences at the level of the collective personality in the community or at the level of education of the population.

Maintaining a physically active lifestyle is associated with better health and improved longevity. The activity levels of older people are a result of their awareness of the beneficial effects of physical exercise on their overall health. Incorporating new physical activities during old age significantly improves physical health and cognitive abilities in older people. Discussions on quality of life, which have been frequently mentioned and emphasized in recent times, directly influence the physical activity of older people. Regular and appropriate physical activity can slow down the aging process, thereby contributing to increased or maintained levels of good quality of life in old age [49–51].

From the perspective of assessing the functional abilities of an older people, it is advisable to first focus on improving/maintaining their balance, vision, and fitness, and then on environmental factors that enable living in their own home and contribute to the occurrence of falls, as emphasized in the concluding part by Draksler [52]. By assessing the health status and determining the body constitution, which is just one of the factors influencing our physical and mental health, we gain insight into the anatomical structure of the body (examining the body's structure with the naked eye or studying organs under a microscope) and the issues faced by older individuals

on a daily basis [53]. This enables us to subsequently focus on providing appropriate support for independent living in the community and laying the foundations for the deinstitutionalization process.

Good and sufficient information on ways to make life easier and enable safer aging often contributes to a better quality of life for older people. By using various assessment mechanisms that evaluate the risk of falls, we shed light on the risk factors faced by older individuals in performing basic and supportive daily activities and highlight the most obvious deficiencies in their functioning. Independent living in the community is associated with enabling active aging and fall prevention. Independent mobility and changing positions depend on the motor skills of older individuals, the use of aids (walking sticks, crutches, walkers, wheelchairs, and cars), and the environment [54]. Since maintaining balance is primarily associated with its assessment, various assessment scales are used in the reviewed studies to evaluate balance (Berg Balance Scale) [55], physical capacity by incorporating basic motor skills (Timed Up and Go test) [56], and assessing physical capacity with an added cognitive task (Timed Up and Go test with an added cognitive task) [57, 58].

Among the daily important tasks of independent living, the Berg Balance Scale assesses static and dynamic balance tasks such as rising from a chair, standing without support, sitting on a chair without back support with feet on the ground, sitting down, transferring, standing with eyes closed without support, standing with feet together without support, reaching forward in a standing position, picking up an object from the floor while standing, looking back over the left and right shoulder in a standing position, turning 360 degrees, alternating leg placement on a step or stool while standing without support, standing without support with one foot in front of the other, and standing on one leg.

A valid indicator of falls in older people [58] is the Timed Up and Go test [56], which assesses basic motor skills such as rising, walking, turning, and sitting, as well as the ability to change positions (dynamic balance) and walking speed. An enhancement of this test is the Timed Up and Go test with a cognitive task [57, 58].

In order to live independent and autonomous lives in the community, older people must be able to perform tasks safely and reliably. These tasks are assessed using assessment tools presented in research papers in the field of balance assessment. The purpose of these assessments is to enable and ensure the inclusion of older people in the performance of ADLs and IADLs. By assessing and treating balance problems, older adults can maintain their functional independence and actively participate in their daily lives.

This is extremely important and to some extent reflects a reality heavily influenced by globalization and modernization, in which younger generations no longer follow the lifestyle of their parents and therefore do not adhere as closely to traditional values, leading to intergenerational conflict. In addition, as adult children grow older, they face greater pressures in their daily lives and must also take care of their own children. This, in turn, may make them less available to their parents, reducing the frequency of contact and structural-associative solidarity between the two generations [59].

4.3 Exploring the impact of social factors on longevity and the role of caregiving in addressing social challenges

Social factors challenges refer to the difficulties or obstacles that arise from the social context in which individuals or groups interact. These challenges can impact

various aspects of life, including relationships, communication, and access to resources and opportunities. Some common social factors challenges include: social inequality; discrimination and prejudice; social norms and expectations; social isolation; and cultural differences and social stigma.

In the context of longevity, it is important to address social challenges, generational solutions, and gerontology. Despite having a rich social network, older people often experience a loss or significant reduction in social connections due to illness or injury. Occupations related to caregiving also involve collaboration with others. Referring back to the examples presented earlier, in each occupation within the realm of caregiving, whether involving formal or informal caregivers, there is an interaction between at least two individuals and their involvement in the execution of the occupation.

According to Woodman et al. [60], the loss of social contacts and social isolation is one of the common consequences of stroke and can greatly affect individuals both emotionally and physiologically. It is also known that individuals tend to isolate themselves and focus on other activities, which may be less important to them, while concentrating on improving their physical condition during the rehabilitation period following a stroke, for example.

Seniors' participation in social activities is crucial for preventing social isolation. They have a desire to socialize and integrate with other age groups and cultures within their communities. Intergenerational activities are mutually beneficial, as older people can pass on knowledge, traditions, and experiences, while younger individuals can assist seniors with new technology and practices [61]. Belonging to groups, whether they are friends or organized groups, has been positively associated with better health and health-related outcomes [62, 63]. Social opportunities are necessary to maintain social interactions and participation in later life [64]. A photo-based ambulatory assessment study revealed that there are older people who spend most of their time engaged in activities without interaction, leading to feelings of loneliness. Additionally, there are older individuals who spend less time in social interaction and those who spend the most time outside of their homes helping others or participating in community activities [65].

Social participation was found to be linked to the quality of life among older adults in Europe. According to data from the SHARE study [15], older individuals in Southern European countries (Italy and Spain) consistently reported lower quality of life compared to their counterparts in Scandinavian countries. The highest level of quality of life was observed in the Northern European region, while the lowest was reported in the Southern European region [66].

By actively and passively involving our gentleman in formal and informal care, we not only improved his participation in daily activities and communication with care providers but also reintroduced him to a lost occupation that allowed him a certain level of independence, improved his emotional state, established personal identity, autonomy, and increased his desire for further activity and improvement of motor skills [60, 67].

To understand the contribution of formal and informal care to preventing social exclusion or enabling social inclusion, we can look for examples of good practice in each occupation that is part of the care for older people.

The social challenges of the society we live in also include intergenerational responsibilities and tolerance in coexistence with older people, which is a socially conditioned value that can vary greatly between different countries and within them.

5. Conclusion

This study examines the complex concept of aging from different perspectives, focusing on intergenerational relationships, as indicated by the thematic analysis. The findings shed light on facilitating and ensuring the active participation of older people in daily activities at home. The context in which older people live provides both enabling and constraining factors for aging in place and includes environmental, individual, and social challenges. All of these elements are interwoven with the intergenerational challenges we face in an aging society, urging us to give them the attention they rightly deserve. The study not only raises awareness but also paves the way for further comprehensive research, particularly on individual factors through qualitative studies. Furthermore, it aims to create awareness of the factors that enable a supportive home environment and promote intergenerational cooperation.

The multidimensional concept of aging encompasses various aspects that need attention to promote healthy aging and active participation in an aging society. It is critical to recognize and understand the challenges older people face in their daily lives. Environmental factors play an important role in influencing occupational therapy interventions and aging at home, underscoring the need to create environments that support older people in their activities and participation. Personal factors present unique challenges to older people, particularly in areas such as physical activity and independent living, and require tailored interventions to overcome these barriers. Social factors also play a key role in longevity and care outcomes, underscoring the need to address the social challenges older people face.

To achieve successful aging at home, it is important to consider context as a comprehensive construct. This includes understanding the individual's environment, personal factors, and social context and designing interventions accordingly. A collaborative approach involving multiple stakeholders, such as health professionals, caregivers, and community organizations, is critical to addressing challenges and promoting active participation.

Personal factors pose challenges for older people, especially when it comes to maintaining physical activity and independence. Identifying and addressing these challenges is critical to promoting their overall health and well-being. This can be achieved by offering tailored physical activity and exercise opportunities and providing support and resources to maintain independence.

Social factors also play an important role in the aging process. The impact of social factors on life expectancy and the critical role of caregiving in addressing social challenges cannot be underestimated. Therefore, fostering social ties, creating opportunities for social participation, and establishing adequate support systems for older people and their caregivers are essential components of the aging process.

In summary, addressing the challenges and enabling active participation in an aging society requires a holistic approach that recognizes the multidimensional nature of aging. By understanding and recognizing the influence of environmental, personal, and social factors, effective interventions and strategies can be developed to promote healthy aging, improve participation in daily activities, and fully support older people as they age at home.

Conflict of interest

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Section 4

Political and Legal Challenges

Chapter 11

Perspective Chapter: Crisis of Aging, Livelihood and Intergenerational Relations – The Political Economy of Ageing in Fiji

Nii K. Plange

Abstract

A political economy perspective provides a better understanding of aging in Fiji and the challenges of care and threats of poverty. Traditional Inter-generational family and household have remained enduring as primary care givers for older persons from the colonial period when services were limited. It continues to do within contemporary structure of work with retirement at, recently 55, but now 60, and limited coverage from a National Provident Fund. There's however pressure on the inter-generational household from the economy while older people seek to work. State targeted social protection schemes have been established to assist those in need.

Keywords: aging, intergenerational households, economic change, poverty, social protection

1. Introduction

All over the world people are living longer, longer into 60 years and over. This is the aging of the world population. This phenomenon is referred to as 'population aging.' And the age 60 and above has been generally accepted as a marker for old age thus constructing a social demographic identity for a population in a society. With increasing analytical work, a differentiation is sometimes made between the young, the old and the oldest old. Population aging is now recognized as an important development issue with implications for national productivity and a pressing need to design evidence informed policies to respond to the well-being and caring for older people. Efforts to understand aging and the situation of older people in society continues to engage academic interests leading to theories of aging and life situation for older people. The chapter engages with prevailing understandings of aging with a view to providing an alternative perspective which focuses on socio-economic context and change with a focus on the critical role of, and pressure on, the intergenerational family and relations in population aging.

Two global processes, over the past 100 years or so, characterize the phenomenon of population aging described above. Both denote a qualitative change in important

aspect of our lives in the world. These are referred to as the 'Epidemiological Transition' and the 'Demographic Transition.' The former refers broadly to qualitative changes in the understanding of health, illness and disease and the radical advances in scientific knowledge and its application to disease prevention, health care and health care delivery; and more recently health promotion as distinct from public health. As a consequence, many of the earlier burdensome infectious diseases have either been eliminated or effective prevention and care methods have been found and applied through immunization. The burden of disease, as the prevalence, incidence and threat of disease, at particular times, have been made lighter. The outcome is longevity which, in turn, has produced changes in the structure of population which is referred to as the "Demographic Transition." Put simply it is a process in which a society moves from a situation of high fertility rates and mortality to low fertility rate and mortality. Variation of these changes are observable in both countries of the global north and global south. In both life expectancy has risen and continues to rise. As far back as 1993, Kinsella and Taeuber ([1], p. 39) estimated that the global elderly population increases by about 800,000 each month. Historically Europe had the first experience with these transitions with the result that in the contemporary world it also has the highest percentage of population 60 years and above. And it is projected that by 2050 about 34% of its population will be over 60 years. Other areas of the world followed suite with North America, Latin America the Caribbean, Asia and Oceania in tow, all with population aging over 20% [2]. Africa came into the transitions rather late and currently has an average aging population at around 5% with projections that this will double by 2050.

A significant increase is notable in the past 30 year as global population 60 years and above rose from 8.5% to 12.3% between 1980 and 2015 with a projection of another significant increase up to 21.5% by the year 2050 [2]. The socio-economic implications of this demographic phenomenon is enormous, globally, especially as the aged population continues to impact on resources for their care, and livelihood becomes a challenge. This has also, together with factors, created a category of employment now referred to as the care economy [3]. Evidence of economic challenges for the aging population, especially in the global south, have been widespread and underlines the call for relevant policy initiatives to stem the tide of potential crisis of population aging.

Toward the end of the last century, The World Bank, in recognition of the potential crisis of livelihood and poverty including for many older people in the developing countries, commissioned a study on 'Averting the Old Age Crisis' [4]. The Bank cautioned on this demographic phenomenon and its potential consequences for livelihood and called for policies to avert the crisis [4]. Within the same period the World Health Organization underscored the health and poverty issues related to aging and called for the 'inclusion of poverty in health programmes for aging women [5]. This call is also in consonance with both the Sustainable Development Goal 1 and 5 and its preceding Millennium Development Goals.

This chapter critically explores issues relating to the provision of support and care of older people in Fiji. It is informed by over 30 years of research on population aging in Fiji and the South Pacific.

It argues that there is an emerging crisis of livelihood and care for population aging in Fiji leading to significant changes in access to means of livelihood at old age. Against this emerging situation the key research questions for this chapter include (i) whether aging with poverty is a natural state of affairs, (ii) what is the role of socio-economic changes, and some of its characteristics in structuring the aging process, and (iii) how have these contributed to the emerging poverty in aging in Fiji. other words, it is not a natural state of affairs to grow old and poor but a socio-economically

determined aging context underlines the crisis of poverty and this relates to the, nature, structure and the constitution of modern work including issues of wages, profit, and retirement age including retirement benefits and a category of work defined as 'economically active' in contrast to unpaid work.

Efforts to address and stem the crisis would require policy options that will respond to the specificity Fiji's economic situation and prevailing support structures. With respect to Asia, for example, Sang-Hyop [6] observed the changing support systems that include intergenerational pool of resources. He observed that, that '...the elderly in in Asia are relying less on their families than they did in the past. The question is what strategy should be used to compensate for the decline in this traditional source of old age support: developing extensive social welfare systems as in Europe and parts of Latin America or relying more on accumulating personal assets as in the Philippines, Thailand and the US.' In my own work, much earlier, I have wondered whether policy options derived from the socio-economic formations of the global north are appropriate for resolving welfare issues, in this case for the elderly, in a hybrid economies of the global south [7]. For example, what are the implications of, or the value of, Provident Funds for old age livelihood in an economy with enduring high unemployment, still higher unemployment rates for women, low labour force participation rates, large subsistence sector and unpaid work, poverty rates at around 25%, and retirement age at 55 and now (about 2 months ago) increased to 60.

2. Methodology

The methodology used for this chapter includes primarily access to, and critical use of, a mix of quantitative and qualitative secondary data. The latter from documents and journal publications including my own as well as observation and notes from in-depth interviews from an ongoing research on care work. The former are from existing census and survey data, statistical reports from government and other sources including in journal articles. The historical nature of the data is relevant and sufficient in responding to the key questions as they provide a picture and understanding of changing socio-economic situation and context of the country and its impact of aging as a life situation. The methodological exercise entailed an extensive literature review on population aging generally and, specifically on Fiji, with a critical eye on aspects of change and determinants of change within the lines of disaggregated social, demographic and economic statistical data over a span of more than 20 years. Disaggregated data with socio-economic variables provide relevant sources of data on socio-economic change. These together provide rich sources for historical analysis of change and allow an understanding of changing socio economic conditions as, primarily, social processes with impacts on categories of people, including intergenerational families, within a population.

3. Understanding aging and society: social theory and population aging

The analytical approach in this paper is framed through a political economy perspective which is approach contrary to the individual centered approaches. It holds the contemporary crisis of aging and poverty in Fiji (and countries of the global south) as the consequences of socio-economic transformation and not a natural condition of growing old. It is framed, theoretically, through the acceptance of colonization

as an imperialist project and a neo-Marxist analysis of the transformation of pre-capitalist societies in the nineteenth century under the auspices of a colonial state as the representative of the capitalist imperial state. A racialized structure of welfare and practice, described elsewhere as a 'Colonial welfare regime' was embedded in the colonial administration as part of imperial welfare development policy and practice [8]. This excluded the colonized as beneficiaries of social services that address social and life risks within the colonial capitalist economy. Thus, in lieu of state services, the colonized were left to the welfare and care values of their traditional institutions of family, kin and intergenerational households which, simultaneously, the colonial capitalist economy undermined as it pressed on them for labour, taxes or both, land appropriation, and introduction of basic consumer items. Increasingly poverty in these households emerged as able-bodied men entered the emerging labour force as 'economically active' persons and received low wages. The framework thus empha-sizes the historical transformation of society, and the emergence of the hybrid social structures and institutions that make up part, and in some situations the primary part, of the welfare mix in many of the countries of the global south where '... majority of older people continue to work into very old age, often despite chronic and disabling illness...Older people are concentrated in rural areas but they are also small traders, traditional healers, providers of domestic help and involved in countless of other pursuits' [9]. And within households of intergenerational (sometimes three genera-tions) relations care of the old remained (and continues to be) the task of increasing numbers of unpaid workers, mostly women and girls [10]. This exclusion contributed significantly to the emergence of poverty including of older people in the colonies [11] by the time of independence and have continued as a consequence of development challenges. These challenges include, for many countries of the global south, primary resource based economies with limited employment especially of women, structural adjustments programmes which limit and or curtail social services, increasing debt and downward spirals of GDP leading to weak social protection systems to cater for the growing aging population [12]. The consequences have been an increasing number of elderly people not recorded as economically active but working in informal settings for survival [9] including sometimes as unpaid carers.

This approach differs from other prevailing theories of aging in the social sciences. These include the disengagement, activity and the developmental cycle theories. These have emerged largely within the global north socio-economic formations especially Western Europe and North America. And informed by western orientations in understanding and explanations which tend to focus on the individual and the overarching dominance of formal systems of work and retirement. A structure work which annually withdraws (mandatorily or voluntarily) a cohort of men and women over 60 from active participation in the economy the current changes notwithstand-ing. This system of work has socially constructed a 'population at retirement' based on age and not on capacity to work, and determined by formal, institutional, and policy criteria informed by actuarial science. This is accompanied by state 'Welfare regimes' [13] which provide programmes of support including unemployment insur-ance and welfare payments. We briefly interrogate some of these theories.

The disengagement theory of the aging is particularly appropriate to this institu-tional (mandatory) retirement process. The theory assumes that both the individual and the society are at an advantage when the aged person is excluded from work to enjoy his/her retirement, whichever way he or she wishes. It is indeed of no concern to employers whether the retiree has adequate resources or not. It is assumed that in the situation of lack of resources assistance will be forthcoming from the benevolence

of the state through a pillar in its 'Welfare regime.' In the end this becomes an individualistic and laissez-faire approach to social policy. When arguments are made in respect of retirees and retention of older workers the answer has remained either that they have to create openings for younger people (the fetishism of youth) or that it is the individual's responsibility to save enough for his/her later years. Diametrically opposed to this is the activity paradigm, supported usually by social libertarians. This expresses, and prescribes, the need for elderly people to be active in their old age, through participation in a miscellany of outdoor activities, so that they can mix and interact with each other. The resources available for the elderly person is taken for granted and not made part of the explanatory framework. Each of these perspectives, in spite of their differences, tends to identify the individual older person as the main unit of analysis and emphasizes, therefore, adjustment or adaptation as the important aspect of the aging experience. Another approach, that emphasizes interaction, focuses on three factors as important in the aging experience. These are (i) the environment, (ii) the person, and (iii) their encounters ([14], pp. 1–25). Together, they suggest an interaction context within which aging is experienced through significant relationships with others in the social environment. The emphasis is on social interaction as a meaningful and rewarding activity. It nevertheless remains individualistic and directs attention, again, on to the individual. Another individualistic approach to gerontological thinking is provided through the currently popular biomedical theories. These tend to individualize and psycho-medicalize aging through their emphasis which decline with age ([14], pp. 1–25).

The weaknesses of these individual approaches to social theorizing of the aged have been shown through other forms of analysis which adopt the *social* as the unit of analysis. This has dominated most of the writings by social gerontologist who study the relationship between older people and society, particularly such structures as the family, community, and the economy [15]. However, social gerontologists have always examined these mainly in terms of role-loss through age, and therefore unable to delink it completely from the trappings of the individualistic paradigms. These are the dominant paradigms of aging which have emerged from Western Europe, USA, North America and Australia.

The socio-economic and historical circumstances of aging in these societies are different from those of the developing countries. There are therefore different patterns of the aging experience and processes. Family, education, occupation, work, income, healthcare and recreational activities are not identical. The countries of the global south demonstrate hybrids of institutional and structural patterns different from those of the global north [16]. It is a characteristic of these hybrid socio-economic formations that modified and modifying forms of the traditional family, village and community are maintained and continue to provide services including the reproduction of next generation of able-bodied persons. Most importantly they also contribute significantly to what can be described as the 'welfare mix' through absorption and provision of livelihood for the sick, the disabled, the aged, the unemployed and the unemployable with support from intergenerational families and kin.

4. Political economy of Fiji: economy and society

Fiji is a small island state in the South Pacific of about 18.3 kilometers and covering 300 islands. The population comprises of majority indigenous or I'taukei and Indo-Fijians of about 57% and 37% respectively [17] and other minor ethnic categories.

Current total population is 898,315 [17] with an enduring tradition and practice of extended and intergenerational family relations which provides for care and responds to social and individual crisis. Variations of this also exists within the Indo-Fijian community. The roots of the practice within I'taukei and its enduring nature of reciprocity and solidarity have been articulated in the works of Ratuva [18] and Koya-Vaka'uta [19].

Tourism holds a dominant place in the national economy and provides direct and indirect employment to over 100, 000 people [17] and commands an almost 71% share of GDP. Added to a dynamic tourism sector are, commercial agriculture, fisheries, hardwood, gold mining and remittances, with the latter providing an average of 300 million dollars a year. Manufacturing continues to remain on a small scale in areas such as footwear, garments and textile and more recently bottled water and precious stones, spirits, fish and vegetables [17] per capita income was at US$5678.

Unemployment continues to be high, even before COVID-19, at about 6.2% with a worrying higher unemployment at 18.2% of population 15–24 age category [20] and a correspondingly high Informal employment at 60% and varies between male and female at 57 and 65% respectively [17]. There is an endemic poverty in the country, with the current poverty rate at 25% [17] and it is exacerbated by low and increasingly stagnant (between 2009 and 2016) wages, 20% devaluation of the Fiji dollar in 2009 and consequent 38% rise in basic food items and a fluctuating (between 17 and 12%) value added tax. Extensive government borrowing between 2006 and 2020, to cushion the shocks in the economy produced a crushing debt burden of 90% of GDP as government seeks additional policy changes in social protection mechanisms to respond to the crisis of poverty [21].

Fiji was absorbed into the structure of British imperial economy in 1874 and administered through the agency of a colonial state which brokered indentured labour from India, with 5 year variable contracts, from 1879 to 1916 [8] to establish plantation sugar and copra production. A complicit Colonial State underwrote low wages and resisted efforts by indentured labourers, cane workers and later worker associations for increased wages and welfare provisions [22]). To "relieve employers of the burden of an indefinite expense" [8] the Colonial State established the Indian Immigration Introduction Fund, Indian Immigration Return-passage Fund, Destitute Indian Fund (not to be confused with the later Destitute Allowance), and Polynesian Immigration Fund [8] with the key expatriate economic enterprises as contributors and beneficiaries. An Ordinance of 1885 provided "for the Care and Maintenance of Orphan Indian Immigrants" [8]. It left the care of the old to traditional institutions of family and kin.

With a multiplicity of Regulations bundled into what was called Native Policy and backed by imperial instruments of 'Pacification' [23] indigenous Fijians were integrated into the new economy as suppliers of land, payers of taxes in kind, and, with the development of the colonial economy, labour and a cadre of indigenous salariat [8]. A structure of colonial state governmentality a la Foucault was exercised through a tripod of administrative practices. These included census, racial categorization, birth and death registrations and disease notification [24]. A dossier on location and movement of indentured labourers and, Fijians particularly, the designation, documentation and naming of their villages and land owning groups [25] ensured colonial domination.

In the labour market, Fijian were paid low wages with the assumption that they have access to communal life and land as the provider of security [8]. And Fijian resistance to wage labour meant living within traditional family context with subsistence agriculture and fishing as sources of livelihood. Aging parents were then maintained and cared for within this traditional extended family and community structures [26]. For indentured

labourers wages remained low and at level of 'Temple ration.' This meant poverty and starvation [27]. These practices slowly began to yield a category of poor within Fiji's society and an emerging category of old and destitute indentured workers. In lieu of their care by the colonial state they were supposed to be supported, by their kin, from proceeds from their vegetable gardens [27]. Thus the policies of the colonial state, as early as this period, exploited non capitalist institutions, including especially inter-generational families and relations, into a hybrid of an emerging economy. Hence the references to 'Colonial Capitalism' [28]. Formal response to population aging within the colonial economy was absorbed into what I have described elsewhere as "Colonial welfare regime" [8]. It was characterized, primarily, by a 'Destitute Allowance,' pension payments for expatriate officers in the colonial service and the other expatriate economic enterprises, and a residential home (described as indoor relief) for the aging, frailed and sickly indentured labourers, and was administered initially by Commissioners of Labour and later by a Department of Social Welfare [8]. However, this assistance for older people was not a universalized coverage. It was racialized and targeted to only aging indentured labourers with no visible means of support. It excluded both aging indigenous Fijians and other aging indentured labourers with family. For the former the burden of care was placed on their traditional family and kin and households and the latter care was supposed to come from family proceeds from their vegetable gardens [8, 27]. Later, with further changes in the economy including demands for labour and low wages poverty emerged in the towns and within indigenous Fijian households and communities [29]. And much later the Destitute Allowance and the Residential Homes were de-racialized and indigenous Fijians and others were included [8]. These provided the foundations for welfare and care (or recently social protection) of the aging population till the latter part of the twentieth century in Fiji.

5. Population aging: change and projections

Fiji, like other countries experienced its own Demographic transition and has benefitted from the global epidemiological revolutions leading to increases in life expectancy in the twentieth century and Population aging continues to be part of the demographic changes in Fiji. From about 5% in the early 1980's the current population of older people is about 7.5% or 73,900 of the total population [17] and projected to increase to 17% in 2050. Household sizes in Fiji are large (with rural and urban differences) and more than likely of intergenerational residents including older people and prone to poverty [17]. Household and income data shows that around about 27% of older people live in poverty (**Figure 1**).

A little over 53% of older people reside in the rural areas. There is an impact of the graying of the population on the labour force participation. In 1996 for example population 60 years and over was 7.9% of the population and made up 5.7% of the labour force. By 2007 this has increased to 10% of the population and 6.2% of the labour force but with a low labour force participation rate at 30% [17]. Life expectancy as of 2013 figures is 67.6 and 69.9 for males and females respectively. There have been developments in areas such as health and sanitation and increasing number of the population continues to have access to safe water and sanitation [31]. As of 2013, 87.2% of the population and 96.3% have access to sanitation and water respectively. The country continues to witness rapid urbanization with, currently, 60% of the national population residing in cities and towns and a sprawling squatter settlement within and on the fringes of the city and major towns (**Table 1**).
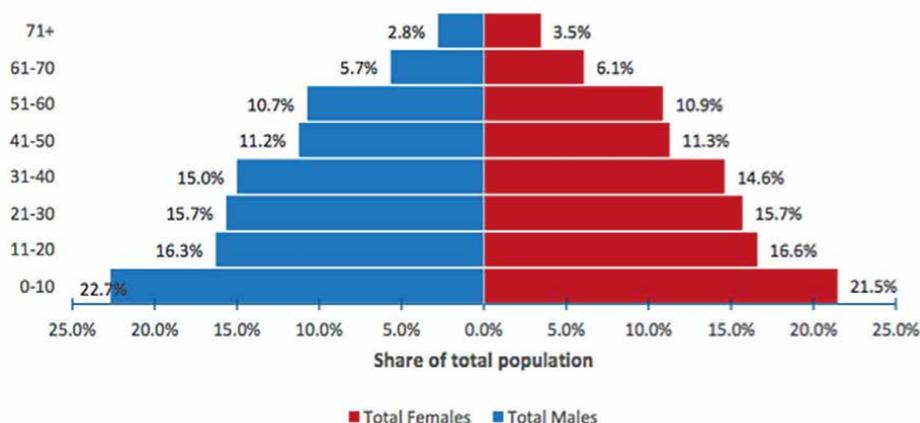
Source: Fiji Bureau of Statistics, 2021

Figure 1.
Fiji population pyramid (Source: Fiji Bureau of Statistics [30]).

Group	2020	2010	2020	2030	2040	2050
	Population (thousands)					
Male	22	31	47	59	69	81
Female	23	36	54	73	88	102
Total	45	67	101	132	157	183
Percentage of total population						
Male	5.2	7.4	10.1	12.7	14.7	17.5
Female	6.1	8.4	12.1	15.9	18.9	22.3
Total	5.7	7.9	11.1	14.3	16.8	19.9

Source: Ministry of Social Welfare, Fiji [32].

Table 1.
Projections on population aged 60+ in Fiji, 2000–2050.

There is a notable feminization of population aging in Fiji as the sex ratio show a decreasing trend from 90.9 in 2000 and expected to be 81.6 in 2025 (see **Table 2**). As per available data the female component of population 60 years and over was 52.4% in 2000 and expected to increase to 55.1 in 2025. And with the higher life expectancy of women there are currently, more widows in the aging population that widowers [32].

Official retirement age was at 55 (and just now changed to 60) mainly for public sector workers but slowly being adopted elsewhere. Difficulties in post-retirement employment, especially in urban areas, is the main challenge for the younger elderly at pension [33, 34] and poses a risk to livelihood at old age. It is estimated that about 70% of the population age 60 and over are not covered by any formal pension scheme [34]. Policy for averting a pending crisis is lacking, though now in consideration, especially in the light of research evidence that show the tendency for aging with poverty in developing countries [35]. Current means of sustaining livelihood at old age, in Fiji, can be placed into five categories. First through continuing work by older people and especially those in semi-subsistence living in rural areas [34, 36, 37], second

Indicator	2000	2025	2050
Sex ratio of the 60 and over population	90.9	81.6	87.3
Proportion of the 60 and over population that is female	52.4	55.1	53.4

Source: Ministry of Social Welfare, Fiji [32].

Table 2.
Feminization of older population in Fiji, 2000–2050.

continuing formal employment and informal self-employed work, third access to a targeted state social pension, fourth the unfunded National Provident Fund and fifth a combination of elements of some of these including remittances in cash and kind. Based on formal employment, and mainly for public sector workers from its inception, women are underrepresented in this category of recipients of FNPF provident payments [8, 34]. The existing 'Welfare regime' in Fiji, only a variation of the colonial Welfare regime, provides a targeted social pension for older people In coverage it provides for a total of 54,200 almost 50% of the aging population (see below, Section 9).

6. Aging in Fiji: issues and challenges in intergenerational relationships

The key to ensuring livelihood at old age is, primarily, by access to, and satisfaction of, basic needs especially of health and wellbeing. Research on livelihood at old age has underlined the hardships faced by older people, generally, as well as the 'difficulties for some families to provide care and support for older people' [9, 36]. Elsewhere I have described the lack of means to maintain basic livelihood at old age as constituting 'social disability' [38]. Research on aging and the elderly in Fiji undertaken between 1984 and 1993 [36, 38–40] and more recently [34] have all underlined the health and livelihood needs of the elderly resulting from disabilities or chronic diseases. These studies affirm the findings of others that have come to the same conclusions [41]. In Fiji the national disease burden is heavily weighted by non-communicable diseases and the prevalence of risk factors such as smoking, alcohol use and over-nutrition. In 2003 the World Health Organization noted that such practices do have later 'mortality and morbidly effects on older people' [42]. Health conditions at old age in Fiji include diabetes, hypertension, heart disease and cerebra-vascular diseases [34]. And there has been steady increase in Diabetes (T2DM) prevalence in population 60–64 over the past two decades from 17% in 1980 to 36.8 in 2011. Obesity and cardiovascular diseases have also recorded similar increase [43]. As noted recently in a study on Fiji [34] '...the older population is more likely to be sick, infirm or disabled than ... middle aged' and the typical elderly 'is the one who is not mobile and has some form of disability or other serious medical ailments that need constant medical attention and health care' [34]. Inevitably there are gender differences as was found by Panapasa and Maharaj [39, 40].

7. Living arrangements: intergenerational households and aging

Traditional family structures and living arrangements in Fiji were intergenerational as extended families occupied households within communities (see **Table 3**).

		Urban	Rural
Marital status	Currently married	35.6	32.6
	Ever married & single	14.8	16.9
Living arrangements	Living alone	14.8	18.7
	Living with others	35.6	30.9
Number of children	0–3	33.2	26.9
	4–6	16.1	16.8
	>6	4.7	2.4

Source: Seniloli and Tawake [36].

Table 3.
Living arrangements of older population in percentages.

The earliest cross national survey on aging in Fiji [44] showed only 2% of the aging population lived alone compared to and 72% who lived with four or more other people. By two decades later, in 2013 [34] 60% of population 60 years and above live with three 4 or more people. And this varies with gender and ethnicity [34]. The same research also found that intergenerational living arrangements is common among the older people with about 30% and 20% living in two and three and generational households respectively with variations between urban and rural residents. Sharing of resources across generations was described earlier as a form of 'Reciprocal subsidization' [16], a situation where older people contribute effectively including sometimes mortgaged and mortgage free homes with children and their families(to the intergenerational household. This intergenerational context provides the situational for interaction, activity and in villages particularly, community involvement. And these as the 1984 data noted also provide '…Respect and care of older persons as an abiding norm of all communities…' [34]. With increasing economic change and demands there has been pressures on these structures of care. Seniloli and Tawake [36] observed that, there is crisis within and with intergenerational care and support as resources for caring are usually not at par with the desire to care and, that decreasing of family size is also slowly contributing to shrinking family resources for care [34, 36]. The decreasing family size is the consequence of a combination of migration for work within and increasingly outside Fiji as the economy contracts and employment opportunities shrink and are exacerbated by the effects of climate change [12].

These economic challenges rightfully raise concerns with livelihood and aging in Fiji and are exacerbated by the enduring problem of poverty. The National Poverty Survey in 2009 gave an incidence of poverty as 35% in 2003 and 31% in 2008. By 2021 it has dropped only by a few points to 29.9% which 'means approximately 258,053 of the national population live in poverty with almost identical percentage of p[people over 65 years living in poverty [17].

8. Older people in search of livelihood: population aging and work

Retirement as was noted by an author on Fiji's aging and work context 'has become a default definition of the elderly' [45]. And indeed with consequences for older people including even those educated, with skills and willing to work. Challenges relating to family and individual economic resources for a decent life at old age,

together with, for some, health and skills, have compelled older people to continue to work after retirement and at age 60 and over. Within the national economic structure and the labour market the increasing unemployment including, especially, of a bulging youth population continue to inform the discourse on retirement. Retirement age has continued to fluctuate within Fiji's political economy from an earlier 55 years, then to 60 then back to 55 and more recently increased to 60, yet again. That retirement is not associated with ability and capacity in many jobs has been recognized and debated. Specifically, retirement relates to calculations for Retirement/Provident fund payments and not the ability to work. Writing on aging and work in developing countries Devaney ([46]:172ff) noted the relationship between the poverty (the economy) at old age and the need for income. It is indeed the same economy that 'arbitrary' pegs exclusion from paid employment on the basis of age. Thus aging in Fiji has also been accompanied by, for some, the compulsion and willingness to work both for survival and in some cases to support the intergenerational household [45–48]. Available data show older people working in different sectors including self-employment with those aged between '65–74 engaged in elementary occupations' [45] while those older, and especially women, continue to be involved mainly in unpaid work within households and communities [49, 50]. **Table 4** shows a combination reasons for working across gender, ethnic and residential lines and **Table 5** types of work undertaken by older citizens.

Background variables	Choice (%)	Economic/other compulsion (%)	Number
Age			
55–64	37.0	63.0	46
65 years +	62.5	37.5	16
Sex			
Male	42.2	57.8	45 (73%)
Female	47.1	52.9	17 (27%)
Place of residence			
Urban	46.9	53.1	49
Rural	30.8	69.2	13
Ethnicity			
Fijian	45.9	54.1	37 (60%)
Indian	40.0	60.0	25 (40%)
Marital status			
Married	48	52.0	50
Ever married and single	25.0	75.0	12
Education			
Secondary or Less	34.1	65.9	41
Tertiary or More	61.9	38.1	21
Income			
<F$3000	31.3	68.8	16 (26%)

Background variables	Choice (%)	Economic/other compulsion (%)	Number
F$3000–F$5999	33.3	66.7	15 (24%)
F$6000–F$8999	30.0	70.0	10 (16%)
F$9000–F$14999	58.3	41.7	12 (19%)
F$1500 and more	77.8	22.2	9 (15%)

Source: Adapted from Seniloli and Tawake [36].

Table 4.
Working older citizenz by reason and social variables.

		Crafts and related trades	Consultancy	Elementary
Age	55–64	21.7	26.1	52.2
	65–74	25	12.5	62.5
Marital status	Married	26.0	22.0	52.0
	Ever married/single	8.3	25	66.7
Sex	Males	23.7	28.9	47.4
	Females	20.8	12.5	66.7
Area	Urban	22.2	17.8	60.0
	Rural	23.5	35.3	41.2
Ethnicity	Fijian	22.5	22.5	55.0
	Indian	22.7	22.7	54.5
Living With	Alone/Spouse	16.7	25.0	58.3
	Children	25.9	25.9	48.1
	Children & Others	23.7	9.1	6.6
Education	Primary or Less	20.0	12.0	68.0
	Secondary or more	24.3	29.7	45.9
Living education	= < 3	19.5	26.8	53.7
	= > 4	28.6	14.3	57.1
House hold size	1–3	7.4	33.3	59.3
	>4	34.3	14.3	51.4
Health status	Not so healthy	—	33.3	66.7
	Healthy	28.9	22.2	48.9
	Very Healthy	9.1	18.2	72.7

Source. Adapted from Senololi and Tawake [36].

Table 5.
Type of work at old age in Fiji by socio-economic variables.

9. Social policy, social protection and aging in Fiji

The current 'Welfare regime' in Fiji remains a substantial replica of the 'Colonial welfare regime' albeit with some tinkering to respond to post-colonial socio-economic challenges. Among the different 'Pillars' of welfare, or social protection as it is now called, is a 'Social Pension Scheme' designed specifically as assistance for older people. Added to this is also a transportation allowance named 'Bus Fare Programme, to assist disabled and older people. The colonial Pillar of 'Destitute Allowance 'has been replaced by a 'Family Assistance Scheme 'to reflect the traditional concern for families and as a support for a household in need and in poverty. The Social Pension scheme is still targeted and the amount differentiated by age categories. Thus older people at 65–69 will receive a 15% increase of allowance to FJD 115 and those from 70 and above will receive FJD 125.00. But the assistance is not universal. It is targeted by age (60–64 excluded). Older people 60 year and yet to be 64 are catered for through other facilities within the 'welfare regime' [50]. Increasingly the policy appears to be inching slowly toward a universal coverage albeit with few differentiations.

This form of social protection for the aging population is underscored by the large number of older people, about 70%, without access to any pensions. And this will continue as a consequence of contractions in the economy leading to high unemployment and a burgeoning informal /subsistence sector [12]. But even the monthly receipts, by the few older pensioners, of retirement benefits, from the National Provident fund are low. The National Policy on Aging noted, in 2011, that Provident Fund receipts, for many, is only about '1.7 times the basic needs poverty line for an urban resident and about 2.0 times the poverty line for a rural resident' [32]. And that, 'on the basis of these figures, the average Provident Fund recipient 'is skewed toward the lower end of the distribution with few individuals receiving well above the average but most receiving below average pensions' [32]. This is a result of multiple factors within the political economy of Fiji. These include, low productivity [51], low salary and wage levels and therefore limited contributions into the Fund, lack of investments to expand the economy and provide employment and retirement at age 60 (raised from 55 just about 3 months ago) to complement the actuarial calculations of provident fund benefits payment logic.

Under pressure from the economy the intergenerational household which harnesses resources now provides no respite from poverty and assurance of decent livelihood at old age. Recent analytical work on poverty trends in Fiji [52] found that 'households with children and elderly are much more likely to be poor.' And that 'households with both elderly and children are the poorest with a poverty head count of 52%. But ageing parents within intergenerational households are not idle and solely dependent on household resources. Evidence from research show involvement with community activities, maintenance of social relations and most importantly provide critical services within the household [53]. As far back as 1984, 71% of older people (69 and 73 male and female) reported providing household services such as caring for grandchildren. And there was no significant gender differences [54]. While a replication of this survey is yet to be undertaken, qualitative data from sources report a significant number of older people, and increasingly older women, in intergenerational households continue to provide relevant services of relevance which contributes, in the words of Mkandawire [55], to produce the 'means of production.'

10. Conclusion

Population aging in Fiji has benefited from the advancement in the prevention of disease to lead to an increases in life expectancy for both men and women but with an observable feminization of aging as women have a higher life expectancy. However challenges within the economy and health, due to increasing chronic NCDs at old age, continue to impact on livelihood inspite of the strong belief and practices in intergenerational living and harnessing of resources. This has compelled older people to work even after retirement at age 55 and now 60, and more older women to provide unpaid services within intergenerational households. An earlier social protection scheme designed under British colonialism was limited, targeted, and deprived many older people of any services to contain social risks. This transferred the burden of old age care and well-being to, and reinforced, traditional intergenerational households. But the intergenerational household is under stress from pressures in the economy. An established Provident Fund, just before independence, still remains limited in its coverage and thus unable to avert poverty at old age for many. To date a revised, but still targeted, social protection scheme called social pension provides for the livelihood for almost 50% of the older population in Fiji.

Clearly then increasing poverty in old age is largely socioeconomic determined rather than a natural state of affairs in growing old. And the same economic issues impact on livelihood as intergenerational relations and resources are put under pressure. Social theorizing on population aging, especially for developing countries, can benefit substantially from a perspective which considers the historical origins of the nature and structure of work and its impact on traditional family and intergenerational relations on issues such as resource mobilization, livelihood and the changes in the aging situation. Where policy initiatives are designed to respond to the 'crisis 'of population ageing these should be evidence informed from primary data rather than a tinkering of old and obsolete 'welfare regimes.' The issue of historical change held as primary in understanding population aging also then underlines the limitations of this study which is based on secondary data. The analysis of the data however has answered the key questions of the chapter. Time and resources limits the efforts for current and primary data on aging in Fiji but the analytical method of change must remain a focus on changes in social formations.

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Chapter 12

Perspective Chapter: Research Ethics and Older Adults as Research Participants – What Needs to Change?

Kerstin Roger

Abstract

In this chapter, we explore the ways in which we can better understand how university-based ethic review committees, and the protocols associated with research that include older adults, both help and hinder research, and how decisions can be shaped by and contribute towards narratives of ageism. Conceptions of what it means to age are rooted in historic biomedical ideas about the body, in juxtaposition to a richer understanding of the lifespan, history and diversity, intersectionality, and social determinants of health. This chapter explores how decisions made within ethic review committees in universities may be seen to protect older adults from unethical research practices and associated harms, and though well-intentioned, contribute towards the reproduction of ageist discourses and what it means to grow older, to be vulnerable, and to be in need of protection. This chapter draws insights gained from twenty years of research in multi-national, provincial, and local teams, teaching all levels of aging related courses at a local university, and work in the community. This research has been located in Canada where the Tri-Council Policy Guidelines require all research that includes human subjects to be approved a priori through a local research ethic review committee.

Keywords: exclusion, older adults, ethic review committee, protectionism, research eligibility, capacity

1. Introduction

This chapter will explore the ways in which the governance of ethics in research through university-based ethic review committees can be shaped by and contribute towards discourses of ageism—namely, false assumptions about older adults and their ability to participate in research. The position of the chapter is that ethic committees can better serve older adults as research participants, and in that way, furthering knowledge on aging. Global issues surrounding aging research will be examined, including a focus on intergenerational relationships (e.g. caregivers, adult children, professionals, researchers). It is true that historical concepts of 'aging' are rooted in biomedical norms about the body, in direct juxtaposition to the impact on our bodies

of social determinants of health. Referencing work by the United Nations, the World Health Organization, and the International Federation of Aging, this chapter explores how normative discourses on aging can shape decisions and contribute towards or reproduce ageist norms on ethic review committees, thus impacting research conducted with older adults in a number of ways. The work draws on insights gained from over twenty years of research in multi-national, provincial, and local teams, teaching all levels of aging related courses, and work in the community with older populations. This research has been located in Canada where the Tri-Council Policy Guidelines require all research that includes human subjects to be approved a priori through a local research ethic review committee.

Undoubtedly, research with an increasingly aging global population requires intergenerational relationships front and centre. Intergenerational relationships span families that surround older adults, friends and communities, as well as professionals who embody intergenerational relationships as their patients/clients grow older. We have seen through COVID-19 (Corona Virus Disease of 2019) how ageism played out, in which the pandemic highlighted the serious and often tragic hidden epidemic of abuse or neglect of older adults in many contexts. This abuse and neglect was often rooted in intergenerational relationships. A silver lining has been that a deeper understanding of aging and age-isms has emerged about older adults.

2. Global context of research with older adults

In 2019, the United Nations released a report on the current state of aging among the world population, illustrating unique implications for older adults and policy makers [1]. Every country is experiencing population growth among older people, meaning that younger generations are engaging more frequently through their families, work and daily life with people who are older. According to the United Nations (2019), there are 703 million people aged 65 and over living on earth as of 2019, and this number is expected to double by 2050. The population of older people has increased over the past 30 years from 6 percent in 1990 to 9 percent in 2020 and is projected to rise to 16 percent by 2050—this means that one in six people on earth will be age 65 or older by 2050. Older adults aged 65 are expected to live, on average, an additional 17 years. In this way, the aging boomer population is also spread across a 30-year period, so while some are turning 65 in 2025, others are turning 75 or 85 in that year with radically different experiences. Increasingly we see centenarians, resulting in diverse and unique cohorts within what is called 'the aging experience'. The old-age dependency ratio tends to compare the number of people aged 65 and older to younger cohorts overall (those between age 20 and 64), yet this cohort will be difficult to describe as unified. Those who celebrate turning 100 in Canada may have little in common with those turning 80 on the other side of the world, and younger generations are impacted by this varied group of older adults every day. Aging is everyone's context.

Population aging has been fastest in Eastern and South-Eastern Asia, as well as in Latin America and the Caribbean, resulting in new norms and professions for younger generations related to those who are aging. Adults under 50 are experiencing new ideals about aging, professional options with those who are aging, as they watch those around them age. By way of example, not only in health care, new technology innovation is more and more being assessed by an aging demographic with real consumer power: tech innovations are increasingly vetted by older adults who can use them and want to spend money on them. In this way, older adults are not a homogenous group.

According to United Nations (2019), women live longer than men by an average of 4.8 years, even while this gap is expected to narrow over the next three decades. This means that the sex balance among persons aged 80 and over will become more even, although women may continue to live longer than men. The International Federation on Aging (IFA) released their report, "Addressing Inequalities Summit" shortly after the 14th Global Conference on Aging in 2018 [2] reporting on health equity implications for women as they age. Women in many cultures experience the burden of sexism across the lifespan, and as they age, ageist assumptions about being older result in a double effect (sex and age). In many cultures, older women are treated unequally under the law and common norms, not just as they age but throughout life. According to the IFA, financial instability among older women in developing countries such as Kenya (as one example) can contribute to their experiences of poverty and loneliness. Further, the report highlights that older LGBTQ2S+ (Lesbian Gay Bisexual Trans Queer 2 Spirited +) face unique challenges to healthy aging due to institutional discrimination in the form of stigma, prejudice, and judgment over a lifetime. Sexual orientation and gender identities that do not match a heterosexual or cisgender norm are people at risk as they age as well. LGBTQ2S+ face ageist attitudes in addition, making it hard for them to feel welcome in mainstream aging communities/long term care housing options.

Another example arguing against the homogeneity of aging is regarding the *age cutoff point* for aging. Much variability exists, as the earlier point about old-age dependency suggested. In the AIDS/HIV (acquired immune deficiency syndrome/human immuno-deficiency virus) community [3], aging is considered anyone over 50, since surviving beyond 50 has historically been a true medical success and objective. Now, aging among folks living with AIDS/HIV has been extended past 60. A success worth celebrating. Official government pensions in some countries result in an older adult being eligible for pensions at age 65 [3] (https//:historymuseum.ca/cmc/pensions). And yet, in other places in the community [4] (https//:dealhack.ca/canadian-senior-discounts), we see 'senior's discounts' for anyone 55 and over, and so the age cutoff point varies greatly. While many organizations still use this term, 'senior' is no longer seen to be a legitimate term for older adults. See 'When it comes to older adults, language matters', [5] https://agsjournals.onlinelibrary.wiley.com/doi/full/10.1111/jgs.14941. For people with intellectual disabilities [6], the old age cut-off point may be 40, due to life expectancy.

This global snapshot has the aim of demonstrating, by way of example, that homogeneity in aging defined by a specific age cutoff point may be a faulty construct. At least, it may simply predominantly be a Western demonstration of economic work force standards. These examples are meant to invite us to consider that all older adults have the right to share their diverse experiences through research participation, and as these relate to their daily lives across a wide range of socio-demographic realities and cohorts. All need to be invited to share through research how their individual aging experiences shapes a broader understanding of aging [7–10]. Research participation allows them to characterize what aging means to them, to speak on their own behalf and on behalf of their own communities, and to reflect the diversity of their lives as older adults, regardless of which community they belong to, how they define becoming older, or how aging is defined and characterized by their culture, or by the mainstream.

3. The World Health Organization (WHO)

The WHO released a report in 2011 titled, *Standard and Operational Guidance for Ethic Review of Health-Related Research with Human Participants* [11]. This report

highlights the process and conduct that a Research Ethic Committee (REC) must follow when evaluating proposals that involve human participants. RECs are obligated to establish and follow a system when reviewing research. This may include consulting laws and other guidelines when considering research applications to ensure the framework of the proposed study is within the parameters of what is legal. Reviewing previous judgments and decisions regarding similar research proposals may also impact a REC's decision on current or future proposals involving a similar study design and/or groups of research participants. Community input is (or should be) sought by RECs so they have mechanisms in place in which they can receive community feedback. In our experience, community-based inclusion/oversight was not embedded in local ethic review committees. These sometimes function with academic Faculty as volunteers only, with increasing administrative duties related to any one ethic protocol. RECs utilize a checklist to ensure that all the relevant criteria for evaluating research ethic are covered in a proposal. These checklists may include, but are not limited to, items such as the scientific research design and conduct of the study, risks and potential benefits of the study, recruitment and selection of research participants, protection of privacy and confidentiality among research participants, and the implications of the research findings among the larger community. However, having a checklist approved at the beginning of a study, does not require, or ensure that relational practices for community-based relationships are maintained over time. A protective feature is that those of us who conduct community-based research often have long standing good relationships with communities, otherwise recruitment and continuing research would not be possible. While checklists and protocols are necessary and have inherent value, the success of being ethical throughout a study conducted over years, does not depend on appropriately filled out forms housed at an administrative level of the university [12].

The 2011 WHO report goes on to state that to avoid bias and other judgment, research proposals should be treated independently from each other. No two research proposals are the same; even though the group of participants may have similar characteristics, the parameters of the proposal may be completely different. Some applications might include more psychological risk to participants than others. This reality may reduce the likelihood that RECs overgeneralize based on population characteristics, however, varying viewpoints can be introduced into decision-making when involving input from the community. The overarching views of the community may persuade the decision of RECs (committees that may be comprised of people who advocate for a strong protectionist stance) to accept more innovative and diverse types of research proposals, based on needs seen by community members.

The WHO report references the importance of educating REC members. Opportunities are available for REC members to become skilled on topics with which they are not familiar. Training on the basic principles of ethics in research is available for REC members. Given experiences with ethic review committee comments, members were not always well versed in research related to aging and make decisions based on an ageist lens that overlay protectionist decisions about who might or might not be included in aging related studies. When older adults are not included, their views cannot be collected, and new knowledge cannot be developed about aging.

The 2011 report refers to the role of the entity that establishes an REC. This overview is responsible for ensuring the REC is following guidelines. For example, entities conduct evaluations on the judgments and reasonings behind a REC's decisions to approve or deny a research proposal. This evaluation ensures that their work is consistent with respect to research ethics. The report stresses the importance of clear dialog between RECs and researchers throughout the research process, not just at the

beginning. Researchers are responsible for informing the REC of any changes made to the research project that may harm the level of protections among the human participants. RECs can request random reports from the researcher regarding the progress of the study at any time during the project timeline. In this way, ongoing discussion, responses in writing, and overall engagement between RECs and researchers can lead to educating members of ethic review committees on key issues.

RECs can also be overly involved, seen as micromanaging through administration. This may lead to a false sense of security that if things are documented and signed, ethical approaches are being employed in the community. Micromanaging by relying on administrative checklists, forms, techniques, and documents, may not rigorously evaluate the strong ties and ethical relationships which exist between researchers and their communities.

4. Topical literature on ethics and research: are older adults vulnerable?

4.1 Methods

Health science library experts were consulted to determine relevant databases and a proper search strategy. The most appropriate databases included EBSCOhost, Google Scholar, UM Libraries, Google Advanced and Scopus. Overall, the search results from EBSCOhost were limited and we were unable to find sources that fit the inclusion criteria for this study (see below). The same was observed on Scopus, in fact, many of the results retrieved on Scopus were similar to EBSCOhost.

The following search string was used to scan these databases: i. Elders OR elderly OR "older people" OR seniors AND Violence OR abuse* OR neglect* OR trauma* AND "research method*" OR "research ethic*" OR "ethic* research*". Google Scholar was very effective in identifying useful articles. In the advanced search feature on google scholar, we imputed "Elderly "research methods" ethic*" in the box titled "Find articles with all of the words" as well as "with at least one of these words". We filtered the publications to include only items between 2015 and 2022.

We were able to find a few relevant book chapters by searching in the University of Manitoba (UM) library database. The search strategy we used in this database was (seniors OR "older people" OR elderly OR elders) AND "research methods" AND ethic*; and we filtered the results to include only articles published between 2015 and 2022.

We used Google Advanced to identify gray literature on the topic, but not much exists. Regarding keywords, we found that the term "older adults" retrieved the fewest number of relevant items. So, we focused on the term "elderly" by adjusting the search strings accordingly.

The search for scholarship thus resulted in a small sample specific to aging, and material in other closely related fields (e.g., disability). A review of found articles revealed two central (and potentially contradictory) concepts; (1) the need for ethic committees to ensure that the central tenet of ethic among older research participants is covered, and (2) an ethic committee's protectionist views concerning the fragility or vulnerability of research involving older adults. A careful review of the literature indicates that concepts of 'over- protection' in issues pertaining to aging and research participation, can and do shape decisions about older adults and participation in research.

For example, Arrant [13] believes that older adults represent a fragile population and cites research to argue in favor of being vigilant when considering the costs and benefits of conducting research with older adults. The author portrayed older adults

primarily as a vulnerable cohort in need of protection, without a deeper reflection of the diverse experience of aging or considering a strength-based approach to aging. Locher et al. [14] similarly states that older participants are vulnerable and implies that special consideration is needed to study older people, specifically due to their age.

Alternately, Dresser [15] believes that autonomy rests in participants, not researchers or ethic review committees; making the argument that an older person should be allowed to participate in research if they deem themselves to be able and willing. Dresser explores that ethic committees may be too protectionist and suggests that ethic committees should relax their restrictive stance. Panchana [16] similarly argued that the protectionist stance of research ethic review committees' harms research. By shifting the focus towards protection of older adults, with less emphasis on the autonomy of older adults and their rights to pursue their own potential, even as research participants, may reflect a narrow view of aging and research participation. According to Panchana, research ethic committees may also be motivated to govern by emphasizing the legal risks of research for the institution, thereby protecting universities first. The overall benefit for an increasingly aged society is to better understand the diverse plethora of aging, which is missed when protectionism based on ageist narratives, occurs. Among the recommendations discussed by Panchana, is the need for self-reflection and education among ethic review committees when considering the ethic of research involving older adults, the willingness for ethic committees to collaborate with other gerontological research before arriving at decisions, and the importance of researchers to be cognizant of the fact that gerontological experts may not be available to sit on ethic committees due to busy schedules.

It was clear that international research ethics committees and human research ethic councils tend to view older adults as a vulnerable group *de facto*, emphasizing the process of weighing the benefits and burdens of permitting their involvement in research studies [13–16]. Consideration of strengths and abilities is shadowed by the specter that older people are simply more vulnerable due to their age, while it should be understood that vulnerability of some older adults is to be safeguarded by researchers. For example, in the case of conducting research on abuse against older adults, researchers have a responsibility to share privileged information with authorities, family members, or other personnel if they believe the participant is presently in danger [17]. As well, clinical assessments to establish capacity vulnerabilities and protect participants from harms in research participation, should be in place, regardless of age for any population. But capacity assessment does not indicate someone ought not to participate in research. And furthermore, these are not age specific risks (anyone can lack capacity in a number of ways for a number of reasons at any time in life) – so, it is important to note that clinical assessments for capacity do not transfer easily to assessing ability to participate in research. Research eligibility and clinical assessment for capacity are two different areas, and this chapter argues that they should be kept distinct and treated as such.

The question of 'capacity' arises as a frequent and important issue to the preparation of an ethic protocol involving older adults in research. The protection of people who may have limited 'capacity' if they do not understand the research question, is a grave issue; and their protection is warranted regarding the possible harms of inclusion in research through which they could be violated. Abuse, discrimination, and exploitation must be conceptualized and considered for any population not just those aging. We must therefore understand the definition of capacity from a non-medical viewpoint as well, and its application in the case of research participation. Martino and Schormans [18] declare that not including willing research participants in the case of those living with disabilities is equally harmful to leaving them out, especially if the research topic is deemed to be relevant to the lives of those living with capacity

issues. There are always risks involved in research participation for any age group and any population; however, capacity should not be a standardized reason for removal from participation, and it ought not to be automatically associated with age. Should we not want to better understand the experiences of those at any stage of cognitive development, including a deteriorating one? Considering the benefits and the strengths individuals bring to research, and especially when memory loss may be a concern, is also to honor older adults in their full autonomy and individuality.

Battistuzzi et al. [19] imply that informed consent is more difficult to obtain among older adults, due to a decline in cognitive abilities. Denying the right of people labeled as 'disabled' to be included in research or basing this decision on a pre-emptive view of someone's age, is equally if not more problematic. Battistuzzi et al. identified several main ethical issues to consider when conducting research with older adults. Among their findings, the researchers argued that older adults experience a decline in cognitive abilities, which in turn negatively impacts their understanding of, and ability to provide informed consent. We suggest that alternatives exist, or may be developed further, to support research inclusion. For example, researchers might try to be accommodating during this process by reading the consent form aloud to the participants, and asking questions to make sure they understand to what they are consenting [14]. Building on what researchers in the field of disability have developed may be useful here as well and bringing in the ethic of inclusion rather than exclusion.

Saghafi et al. [17] go beyond the issue of protectionist views employed by research ethic boards. These authors believe protecting the rights of older people requires a review of common definitions and legislations of capacity, and an understanding of cultural and religious differences among older people. The authors conclude that some older people are less likely to display competence for many reasons unrelated to capacity, and this can affect an older adult's ability to participate in research. However, investigation is needed as to whether they should still be included as valuable research participants.

Bowman [20] questions the use of capacity assessments as a way through which to garner eligibility status for research participation and warns against the focus on capacity assessments for this purpose. He argues, as does the disability literature, that values placed on 'competence' primarily restrict access to a better understanding of cognition, or other daily lived experiences, and for our focus here, the experiences of older adults who may be living with memory loss. This view does not generalize to say that most or all older adults are suffering memory loss, just that those who are ought still to be considered as valid research participants for other reasons. In counterpoint, we ought not to assume that those labeled competent or 'normal functioning' always act rationally. A common biomedical discourse assumes that we are all 'rational' across the lifespan, and that as individuals we exist within a baseline norm at all points during our lives and throughout our lifespan. Research on human behavior, including addictions, grief reactions and depression, or responses to trauma over the lifespan, have shown that 'normal baselines' may not be the most appropriate frame within which to understand eligibility for research. Capacity regarding aging is not easy to define, and it remains a "multidimensional construct with important clinical, legal, ethical, social, and policy aspects" [21]. It may not be the best framework with which to determine eligibility for research participation in the case of older adults.

The contribution of community minded ethic review committee members would be another approach that welcomes an interdisciplinary team who would discuss decisions made in this regard [21, 22]. Sabatino and Wood [23] similarly maintain that capacity assessments towards research participation should not be based on previous diagnoses of competence and capacity, that they should be regularly reviewed, and

they should consider by whom and in what setting questions are asked. Boxall and Ralph [24] speak to the tight over regulation of ethical governance at universities with the hope of preventing harms, suggesting this leans towards unnecessary conservatism resulting in barriers to people's participation in research. These approaches may be well intentioned, but they rely heavily on imagining worst case scenarios, and then that view becomes normalized across all cases and creates a normative standard. Ethic review committees can keep in mind the ethic of inclusion, not just protection.

Another related theme in the literature is recruitment in smaller communities. The pool of participants available in each community, and the reality that only so much research can be conducted on the same groups of people over time, is a credible issue. Smaller sample sizes due to small communities become an ethical issue, especially when many researchers are trying to access the same pool of aging people for a wide range of research topics [25]. Building relationships in any community is key, however, flexibility may be required if there is research fatigue, and research participants simply are not able to provide enough time and expertise in all the areas local researchers would like them to. In the example of caregiving and aging, it is understood that caregivers of older adults may not have sufficient time to contribute towards important and often valuable research. Caregiving research and approving ethic protocols would do well to consider how to support the costs of research participation (e.g., parking, respite costs) for caregivers, especially given that researchers gain from the participation of underpaid and often overworked caregivers. This is an ethical concern! Researchers have the duty to assess all ethical dilemmas from an older person's point of view in order to develop the best approach to conduct their research, protecting the well-being of older adults and potential caregivers [26]. Diversification of regions for sampling, thus seeking broader communities, may be one solution reducing research participation fatigue. This does not imply that older adults ought to be left out of research participation, and especially not based on their age.

5. Ageism as a theoretical frame: how it impacts ethics in research

What frames these contexts? Ageism [27] is stereotyping and discrimination of individuals or groups based on their age. Age discrimination towards older adults is not a new concept but rather, an issue that continues to evolve within the framework of current society. Robert Neil Butler [28] coined the term ageism, arguing that it functions as another form of bigotry and essentially represents a "deep seated uneasiness on the part of the young and middle-aged—a personal revulsion to and distaste for growing old, disease, disability; and fear of powerlessness, 'uselessness', and death". Ageism is not considered an official theory; however, the framework of ageism is important to consider when thinking about application in the field of aging. Researchers can engage in ageism and may also reflect internalized ageism as they themselves age. Ethics review committee members can practice ageism as they make decisions about research participation—'is this person incapable, based on their age, to participate in research?'. Or, 'does this person deserve specific protections based on their age alone?'. Ageism is distinguished from the other 'isms' by the fact that every human being is likely to experience ageism by simply living long enough, however, ageism promotes younger generations to see older adults and imagine that they are different from themselves [29]. In this way, aging and ageism are an intergenerational issue.

Stereotypes of aging, much like those living with a disability, can function across societies and can be further contextualized within an intersectional lens

[30]. Intersectionality suggests that social categories are mutually constitutive, and they often reinforce each other to shape complex social realities beyond but related to biology. Gender, race, ability, socioeconomic status, sexual orientation, and Settler status by way of example, can each interface with ageist discriminations when conducting research on older adults. While this has sometimes been called 'double/triple jeopardy', it is relevant to consider how ageism is deeply layered within broader social, historical, and cultural contexts in ways that include behaviors and daily practices about what is considered 'normative'. The idea remains that 'normative aging' exists and is embedded in institutional practices, and by way of example, in practices associated with ethic review committees. Aging still verges on being seen predominantly as a bio-medical event, with slippage as to the invisible impacts which are social and resource based, policy oriented and cultural in nature. According to the 2015 WHO report on aging and health, social and historic stereotypes about growing older can also become self-fulfilling prophecies, in which older adults are seen to fit a certain stereotype and then internalize those stereotypes. The WHO report suggests older adults may then be promoted into social roles and positions which simply serve to fulfill stereotyped narratives: inability or lack of potential to contribute economically, loneliness and isolation as normative, decreased mobility and cognitive lack of engagement as expectable, all regardless of actual abilities and desire to contribute.

These factors emerge easily and continuously in the classroom on aging topics as well, in which undergraduate and graduate students bring to class significantly detailed understandings of aging as a physical and biological experience. In class, we begin to unpack the ways in which health care systems promote quality of life across the lifespan (and into aging), and, how equity can shape a lifetime impacting health and wellness, and ultimately biology. This critical thinking exercise helps students unpack other socio-demographic features like poverty or gender, further defining a diverse aging experience, and students begin to deepen their view of aging as predetermined and biological. This learning process changes their view of themselves as constantly aging beings, themselves, and deepens their understanding of the diversity of aging populations.

The field of critical disability studies has done significant work in moving us away from understanding disability as a medical understanding of the body [31]. As with disability studies, we see that issues of capacity and biologism are entrenched in a societal view of aging. Reframing the lens of research participation of older adults rather towards resiliency, a strength-based focus, their capacity for social contribution demands a counternarrative. To what extent can we reframe research participation considering the 'agency' of older adults; how can we best promote and invite that agency in older adults regarding research participation? How do we understand collectivity as a society, and 'social capital' as relating to our older populations?

Arguing against the homogeneity of older adults, it is important to understand that not all older adults are able to make significant decisions in their lives if they lack capacity, but this is true for anyone across the lifespan and not specific to aging. Knowing this requires a renewed approach to aging research which might be reframed in the language of ethic committees' decision making. Not unlike the history of disability, in which disability was predominantly conceptualized as a physical medical problem without consideration for the environment, norms and values [32], or, in which people with intellectual disabilities were not included in research at all other than biomedical [33]; ethic review committees assessing 'risk' pertaining to aging (e.g., capacity) may be reworking a normative aging narrative about fragility,

especially when it prevents research participation. There is value in including all folks, even those with capacity issues, but how to do so ethically remains a key question.

What does it mean to be older, seen to be vulnerable, and seen to need protection as a cohort? The Tri-Council Policy Statement 2 (TCPS 2) states clearly, *'the principle of Justice holds that individuals, groups or communities should neither bear an unfair share of the direct burdens of participating in research, nor should they be unfairly excluded from the potential benefits of research participation. Inclusiveness in research and fair distribution of benefits and burdens should be important considerations for researchers, research ethic boards (REBs), research institutions and sponsors. Issues of fair and equitable treatment arise in deciding whether and how to include individuals, groups or communities in research, and the basis for the exclusion of some'* [34].

This chapter explores how ethic review committees generalizing older adults as a single homogenous cohort, and seeing protectionism prima fascia, are buying into an ageist trope. Hamilton [35] states about ethics' oversight, that 'we have developed an unwarranted belief that rules plus compliance equals protection'. New approaches to inclusion in research participation for all older adults, and consideration for those in need of protection (how, why, on which basis), need to be developed [36–39].

6. Recommendations for research ethics boards: what needs to change?

Based on the findings presented, key recommendations include i. Equity and diversity through an intersectional lens, including age cutoff points, ii. Understanding a biomedical approach to aging, and the assumption of the vulnerability of all those who are aging, and iii. Training and education of ethic review committee members.

Equity and diversity: Creating an overall understanding of diversity to the aging experience applies in the inclusion of older adults who are trans, Indigenous, disabled, living with dementia, who define aging differently by culture, have lived beyond 45 with HIV, survived COVID-19 in a nursing home, and so on [40, 41]. Specialty areas within aging may warrant unique kinds of expertise on the ethics review committee [42]. Timmerman [43] suggests that too much standardization relies too heavily on removing the very aspects of research which could be of interest, and by way of example, relying too heavily on ethic protocol forms. As the TCPS 2 states, we should work to find ways to include people so we can better understand their experiences. As van den Hoonard and Hamilton [44] suggest, considering ethics as a problem to be solved through an administrative solution (e.g., forms for the participant to sign and the researcher to demonstrate showing that the research participant is not vulnerable) is not sufficient.

Understanding a biomedical approach to aging: Members of ethic review committees may have little or no experience in research on aging and may make decisions about research eligibility assuming a biomedical approach. Disablism is understood as 'a set of assumptions and practices that promote differential or unequal treatment...because of actual or presumed disabilities' [45] and this matches the limiting rationale that faces older adults through ageism in research participation. We cannot use capacity assessments or concepts of IQ/cognitive ability steeped in a biomedical approach, intended for clinical purposes, to measure the value of research engagement. Diagnostic labels intended for other purposes (e.g., treatment adherence, care needs) become markers for (ex)- inclusivity in research. Van den Hoonard [44] states that there are always potential risks in research participation, and those risks need to be clearly explained guarding the well-being of potential research participants; however,

harms and risks can also be overstated and not reflect the benefits and intent resulting in a particular kind of study. Risks and fears about research inclusion are often imagined, worst case scenarios, and often are simply not very common – not a reason for systematic exclusion based on age.

Need for education and training: Educating ethic review committee members is essential, if they do not have an awareness and knowledge of aging research, and when a research protocol includes aging participants. This can include community members on the committee, but principally here, refers to academics who remain volunteers in this endeavor. It was our experience that an ethic review committee had asked curious questions misaligned with the research question, and after much back and forth over months, a simple question was answered: 'do you have someone on your committee knowledgeable about aging research?" – "no' was the answer. There is an urgent need to increase the responsibility of those entities that oversee REBs and select their members, and to enforce time and effort in training them appropriately, while encouraging ongoing participatory dialog [35].

7. Conclusion

COVID-19, if anything, has taught us that younger generations (professionals and researchers, family, and communities) need to better understand the many diverse and daily lived experiences of older adults [46]. Older adults, their health and life experiences must be honored while understanding the value of their autonomy and resilience. Deeply layered historic and cultural ageism framed what led to many tragic responses throughout COVID-19 and around the globe, in long term care and especially, in the early days of the pandemic [47]. Older adults living in isolation with no care where their professional caregivers had abandoned them, or informal caregivers knew not what to do, and nursing homes where care was just not sufficiently available due to staff shortages. In the early days of the pandemic the term 'boomer remover' occurred frequently in the media [47], an alarming statement made by younger generations! We need to hear from older adults, no matter who they are and what their experiences are.

This Chapter explores the need to expand inclusion in research eligibility criteria, in which research protectionism taken too far does not promote a better understanding of diverse aging realities around the globe, and by doing so, becomes its own 'boomer remover' [47].

Finally, a strength-based approach to research ethics including older adults would value older adults more fully. In turn, this would help to reduce diagnostic labels of 'capacity' as an eligibility criterion specifically attached to age, underscoring older adults' diverse stories as valuable for further theorizing about aging. In return, this would assist in building new models and frameworks of care and practice towards continuing knowledge transfer, with the goal of bettering the lives of older adults in all communities around the globe.

Agency and willingness to participate in research can be coupled with detailed information about presumed risks, and an ongoing conversation with researchers, as well as a cautionary approach by researchers to remain inquisitive and relational as they embark on their approach to ethics-based research. Gaining access to older adults as research participants is incredibly relevant in this context, and further restraints through protectionism has not been helpful in expanding our knowledge base.

What does it mean to grow older, to be *seen* as vulnerable whether one is or not, having lived a full life only now to be *viewed* as someone in need of protection? Is this appropriate? Does it expand our field of vision? Perhaps this is a good research question to ask of older adults.

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Section 5

Variety of Perspectives on Intergenerational Relations

Chapter 13

Intergeneration and Scientific Innovation: A Lift and/or Roadblock?

Philip P. Foster

Abstract

We could imagine a super-computer like the "Matrix" encompassing all intergenerational information of humankind since underdetermined beginnings, Lucy and archaic humans. Until today's generations living together on this planet, a colossal amount of data have accumulated. The matrix would screen across disciplines through keywords according to some initial guidelines initially written in the algorithm. It could also randomly dig into the chaos of big data, connect unrelated disciplines, and check whether this leads to something useful. The problem with this approach is that we assimilate something that we designed and built to the brain that is not our design. Some potential capabilities of the brain totally out of our reach may yet exist. Are the brains of the genius artist and scientist different? What is the nature of the creative process? What triggers this cosmic lightning with a new idea or concept popping up? The intergenerational support role is crucial for creators. The greatest insights in science via abstract concepts are imperceptible to the mind. It leans on all areas of justice. All potential talents should be invited, women with equal rights and underrepresented communities. Justice and tolerance are the greatest challenge of today's humankind. For the sense of justice is not innate, intergenerational education and legacy are vital to mould the next generations. Woman equality, equity, and human rights are a key process behind free will and further progress. The legacy of Generation Zero, first to have consciousness of the necessity to implement justice amongst humans, empowering free will, will truly create a legacy of progress.

Keywords: breakthrough, imagination, intuition, free will, polymath, creativity, generation alpha, AI, *AlphaGo*, matrix, brain, artist, scientist, highly gifted, fMRI, influencers, dogma, Eroom's law, conflict of interests, intelligence, longevity, tradeoff, justice, woman equality, human rights, behaviour, consciousness, inner self, self-object, strategic teaching, genius

1. Introduction

"*The People who are crazy enough to think they can change the world are the ones who do*". Steve Jobs, Apple's "Think Different" commercial, 1997.

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1.1 Only words

Have you already heard words like "Out-of-the-box", "Breakthrough", "Cutting-edge", "State-of-the-Art", "Leading edge", "Groundbreaking," "Revolutionary", "Unconventional", "Avant-garde", "Leading", "New wave", "Vanguard", "Innovation", "Novel", "Spearhead", and grant "Award" for future research? Those terms are often used abusively. At first glance, they seem to bear a powerful impact albeit they are overinterpreted artificially inflating the value of some research prior to the achievement, which may become an invention or remain a potential path to innovation. Let us not cite discoveries, landmarks of humankind, of past centuries, or recent ones. This would be a deliberately arbitrary choice and a partisan view. All are important in our history and our world. Applying, miniaturising, assembling, combining, appending, modifying, and all adaptation of existing concept is progress. However, the popping up of new concepts from scratch out of nowhere is key. If I chose one, two-century-old or a week-old, this choice would be moulded by my training and background, hence highly biased. Thereby, introducing my personal dogma and influencing the next generations of young minds on a particular path of preferences. In contrast, if I pick an imaginary discovery that humans do not have and seemingly nowhere near to achieve. "Everything you can imagine is real" quoted Pablo Picasso, depending on when the state-of-the-art of science is ready to allow the making of the discovery. Let us take an example that everyone may imagine but clearly envision its impossibility today. A simple example of our popular fables, movies, or novels, is time travel and space travel across the entire universe in a few hours. Sometime in the future, someone may design the "time-machine" imagined by H.G. Wells in his novel. In such a case, emphatic qualifiers such as "cutting-edge" would strictly become useless. Saying, that yesterday, Dr. XYZ found a "Time Machine" is so obviously breathtaking that no extra qualifier would be necessary. Such a pleonasm, the redundancy of words would not sound right to the ear.

1.2 Small steps or major strides?

In the current era, a multitude of infinitesimal innovations exponentially increase to improve life and well-being. Although those innovations are sometimes spectacular, the discovery of new concepts is, by far, not rising proportionally. Concepts are somehow the skeleton of science. We already stand on many. Concepts were certainly cherished in previous millennia. Although the first references to the legendary metaphor "*Standing on the shoulders of giants*" are attributed to Bernard of Chartres as reported by John of Salisbury [1], it might go back to Antiquity with Priscian (circa AD 500) and beyond. Greek philosophers, Socrates, Plato, Aristotle (circa 420–350 BCE) were looking at "Pre-Socratic philosophers (circa 585 – 420 BCE)", Pythagoras, Thales, Democritus, also polymaths. This metaphor is derived from Greek mythology: the blind giant Orion carried his servant Cedalion on his shoulders guiding him as his own eyes (Nicolas Poussin, Metropolitan Museum of Art). Thereafter Isaac Newton's letter to Robert Hooke, the expression gained popularity [2]. The twentieth and twenty-first century mark an explosion of countless pragmatic inventions improving everyday life, communications, travel, medicine, and well-being. Science makes progress by small leaps, and discoveries based on existing concepts. Expanding the original concept, applying it in a new way, adding, or removing to it creates an invention. In that case, "Breakthrough", "Cutting-edge", are words often used to qualify the research improving human well-being. I decided not to refer

to any example to avoid the bias of handpicking inventions based on my preferences, education, and background. There is a whole spectrum of inventions with different values. Those practical inventions improving humankind's life are a rainbow with all degrees of importance subjective to everyone.

1.3 Intuitions are invisible to most humans

To simplify the idea, inventions are truly based on previous knowledge "*Looking over the shoulders of giants*". Previous generations and great minds who created those new concepts are truly the pillars of those inventions. Then upcoming generations build on the massive Lego Brick, the foundation concept on which inventions are further developed. A concept is almost present in the world of the invisible. The concept is present in the imagination of its creator, rather than in the visible world. A. Einstein about "intuition" of general relativity [3] said: "I believe in intuitions and inspirations. I sometimes feel that I am right. I do not know that I am. When two expeditions of scientists, financed by the Royal Academy, went forth to test my theory of relativity, I was convinced that their conclusions would tally with my hypothesis. I was not surprised when the eclipse of May 29, 1919, confirmed my intuitions. I would have been surprised if I had been wrong." -- as mentioned in an interview by George Sylvester Viereck (26th Oct. 1929) titled What Life Means to Einstein ... [3].

2. How to fabricate or support creative humans?

2.1 Creative humans or creative machines

Efforts were made to reproduce creativity and imagination in a super-computer. The only inherent problem into this conundrum is that the mathematical equations producing the heuristic and the statistics of big data to write the source code behind the algorithm are human made. We could imagine a super-computer like the "Matrix" [4] encompassing all the data of humankind since the intergenerational information is passed on from generation $Gen_{n-\infty}$, let us say in the neolithic. Until today's generations living together on this planet, the Silent Generation (Gen_{n-2}), Baby Boomers (Gen_{n-1}), Gen X (Gen_n), Millennials Gen Y (Gen_{n+1}), Zoomers Gen Z (Gen_{n+2}), Gen Alpha (Gen_{n+3}) a colossal amount of data was accumulated. The matrix would screen across disciplines through keywords according to some initial guidelines initially written in the algorithm. It could also randomly dig into the chaos of big data, connect unrelated disciplines, and check whether this leads to something useful. The problem with this approach is that we assimilate something that we designed and built into the brain that is not our design. We thereby assume that we know everything about the brain. Therefore, we match something we know with something we do not fully understand. Some potential capabilities of the brain totally out of our reach may yet exist. Let us take a recent example, *David Silver, Aja Huang, Demis Hassabis,* and others [5, 6] designed the "*AlphaGo*" to play the board game "Go", based on the *Monte Carlo tree search algorithm* to find potential moves based on knowledge previously acquired by *machine learning.* It would have been unlikely that any human brain would beat up the computer. By design, AI and knowledge acquired by machine learning, is no match for the human brain which deploys less power and speed and less matter volume dedicated for such fast tunnelled computing. However, so unlikely, Lee Sedol, one of the world's best players at "Go", on March 15, 2016, Lee won one

game which made him recorded as the only human who ever beat AlphaGo [7, 8]. After Lee's unexpected move, observing the game, the designers in the control room were blaring. AlphaGo went crazy developing endless lines of probabilities branching out all useless options stored in the algorithm. "I think that something went wrong... I think it searched so deeply, that it lost itself" [7, 8].

2.2 The brains of the genius artist and scientist: Different?

Would creativity in art and science depend on two different mechanisms [9]? Would creativity be plural based on different brain structures? Is it innate or acquired via a learning process? What is the nature of the creative process? What makes the difference between genius-like-creativity and ordinary-creativity that all humans express in daily life? What triggers this cosmic lightning with a new idea or concept popping up? What magic causes this? Imaging of the brain was performed on highly creative people from art (writers, film makers) and science using functional magnetic resonance imaging, fMRI [9]. When the cortex was activated and the two groups were compared, no indication was found that the artists and scientists represent "two cultures" [9]. Rather, very highly gifted artists and scientists have association cortices that respond in similar ways. Those highly creative individuals expressed strikingly similar patterns of activation of brain circuits in multiple regions of the association cortex involved in higher-order socio-affective processing and in the REST/default mode network [9].

3. Intergenerational crucial role

3.1 Intergenerational support of humankind progress

However, being highly gifted creates a rupture of continuum with other humans. It elicits a distance with others and may also be a curse. Academically high-achieving adults mostly experience existential fulfilment, while intellectually gifted adults have a disproportionally high risk of suffering from a void, which can undermine their potential fulfilment in life [10]. Individuals with high intelligence who have an enhanced sensitivity to stressors, may dwindle their ability to bounce back from adversity.

Originally the information was transmitted as verbal legacy from $Gen_{n-\infty}$, from the "Elders" aka the Wise, to the next. At one point of time drawings appeared on the wall in a cave. Men were hunters and became foragers, away from the gathering points, villages. Women were staying, waiting at the camp. Their role was a leadership one to organise life wisely in microsocieties. The women's role was to anticipate winter or droughts, harsh weather, disease, pandemics, and plan for the survival of the micro-societies. The best leaders were the women who were best at foreseeing the future and providing the safest future to the group. When crops provided food in excess, people started to regroup under leadership based on force rather than acumen. The leader-ship was then transferred from woman to male.

3.2 Roadblocks in research

The deduction is a logical path at a moment of time given the current knowledge. It has almost become a fashionable trend to work on given paths popular amongst

scientists of a specific field. Based on this "logical path", a cultural tradition of the field is born. Heavily and exclusively relying on preliminary data and on the most consistent hypothesis to test next. The consensus of this community-field is established as having the maximum likelihood of success in the field. Hypotheses derived from the consensus are assumed to bear the less risk and the less research monetary investment in the field, hereby, the most ROI, return on investment. This type of research, previous generation endorsing next is the world's widespread model... from preliminary data to data. This is an apparent "no-risk", plausible in the mind of the previous generation (Gen_{n-1}). Exposing next generations (Gen_n, Gen_{n+1}..., Gen_{n+x}) to illusory safety of making progress by being endorsed. Rather dogmatic conservative science which became a not-up-to-discussion culture through time is clashing with free-will. Yet, the no-strings-attached approach imagination/intuition-based is fully based on logic and deduction. Since it is nascent and unseen not visible to pick on the shelves such a path only emitting weak signals difficult to perceive by all minds. All of which precludes the ladder leading nascent progress to come to full life is based on imagination. The comfortable trap of preliminary data often leads to the same well-anticipated dead-end albeit satisfactory for the mind. However, "*The electric light did not come from the continuous improvement of candles*" dixit Oren Hariri. Walking on beaten paths may comfort peers, and strengthen their own career and legacy. Clearly, this is not an intergenerational conflict. Rather, this is an age-free clash strictly intergeneration-independent between two different types of mindsets present across ages. The malleability of the mindset is a metric on how much scholars as individuals are ready for a change. The learning process is dual and works on a feedback process. The best students possess minds that can be moulded with the external information that they receive. Their minds may also be moulded based on their own will with the information that they internally create. It appears that ageing leads to more opinionated minds albeit not always true. Major strides were made in physics when freedom of thinking and experimenting were unleashed in the early twentieth century. Such unrest for this three-decade-period was a fertile ground for creativity in relativity and quantum physics and led to major discoveries from scratch. Epic clashes between the two types of mindsets, free-will and not-up-to-discussion cultures, were peacefully raging... It seems that science falling into the no-argument-comfort zone is an easy trap to preclude progress and Eroom's Law outcome. The latter is favoured by all conflicts of interests ramping up in the realm of science in any system around the globe. This is the conundrum to solve. It is likely AI will come in handy to erase conflicts of interest biases. However, AI brings a normalised science codified by the dogmatic conservative science inherently plugged into any AI man-made algorithm. How to bring the imaginary and intuition dimension in an AI algorithm must be devised. The AI algorithm will flag everything unincluded in the algorithm's source code. AI will implement laborious data mining and statistical analysis of big data. Abstraction and imagination-based concepts seem to require much more of something that is not yet palpable. AI computer rapid processing is radically different from the in-depth slow human brain strategy that will bring abstraction and concept. Leaving free-will to AI is yet to be devised...

Another roadblock in progress and discoveries is the Google Scholar's blind summing of citations related to each scientist (h-index & i10-index). A "Two's Company" within Google [11] created a valiant search tool, the "Google Scholar search engine". However, science search engines are fine for literature searches as automated librarians. Beyond this limitation, assigning a selective role of the current magnitude is illusionary and unrealistic. Its primitive arithmetic applying to everyone without more complex mathematical weighing assigned to the role of each scientist in publication is

highly misleading. This is a total eclipse on the type of contribution of each scientist. Early career or trainees benefiting from momentum by leaders in a leading institution and/or fields that are "hot" are listed as co-authors in top high-impact-factor publications. Worldwide, this will provide an artificial boost for further publications and grants to all listed on those publications or grants in any research system. The inherent bias and flaws of this primitive restrictive Google Scholar arithmetic system and, hereby, unweighing assessment are obvious. Identifying the creator(s) amongst all co-authors is a daunting task and often misleading. Money, ROI, and time which would otherwise be made use of to achieve discoveries are lost to humankind, patients, and well-being. In contrast, Google Scholar is favouring the essential teamwork because it makes no difference in individual roles. The first and last position on a paper may suggest a trend albeit no formal assessment about the creative ability may be made upon the authorship's position. The Google Scholar assessment may slightly indicate essential social skills of scientists to be a team player rather than the sole creative ability. Indeed, teamwork is essential in research. A constructive vision of progress is not intended to discriminate. Each participant in research deserves to be praised and welcomed and there is room for all talents. Rather it is to also find a space for creative individuals, with special minds, those silent individuals, whose voices may not be heard amongst the loud. Discoveries depend on them as well as on teamwork. Equally, Nobel laureates are also known to log low h- and i10-indices prior to the award. Alternate ways of truly selecting "creative scientists" were thoroughly investigated in a recent article in science [12]. Indeed, we can envision a much better AI algorithm based on the current Google Scholar library by including a mathematical model which properly weighs all parameters of creativity.

4. Free will and imagination

4.1 Free will and imaginary/intuitive progress at stake?

Safeguards are essential to avoid slipping on delusional pathways. On the other hand, unleashing the imagination is also key to success. Two antagonist forces are playing. In fact, connecting one generation (Gen_{n-1}) to the next (Gen_n), seems obvious and easy. However, connecting is a subtle process where free-will and guidance must cohabit. Progress requires exploring deeper into a specific field, navigating and crossing disciplines. This requires hyper-focusing on the intractable problem to solve, and uncommon, phenomenal mental energy.

Generations spanning over a century are the Silent Generation (Gen_{n-2}), Baby Boomers (Gen_{n-1}), Gen X (Gen_n), Millennials Gen Y (Gen_{n+1}), Zoomers Gen Z (Gen_{n+2}), Gen Alpha (Gen_{n+3}). We should view a generation-stratum as stretching around the fixed boundaries. Fixed boundaries were set at a time when countries and kings were drafting the youth to the military. Progress in medicine prolonged well-being. Today, civil and physiological ages do not match according to ancient administrative views, and it will be more so in the future. There are probably members of (Gen_{n-1}) still influencing today. The connection between generations is a subtle one. Discoveries and creativity work better without any rules. Free-will and freedom across the board are known to favour a creative mind. However, money allocated for creativity and discoveries by governments is limited. Rules and policies are becoming uniformly the same around the world. This is to allow a democratic process with an attempt at more justice in the peer-review. Peer-review is in the process of becoming

more complex when progress becomes cross-disciplinary. However, the peer-review process intrinsically suffers from major flaws in any system by its nature itself. Many scientists today have experienced diverse countries and systems, capitalist, socialist, or others, and observed this pattern. Those who share this experience are conscious of an inherent major conflict of interests in research grant peer-review and research orientation. Whether the reason would be survival, money, advantages, privileges, promotion, nomination, influence, nepotism, fame, cultural, religious, gender, race, ignorance, conscious/unconscious incompetency, unqualified, age discrimination, sexual orientation, university location, department, personal, inimical, insufficient time, motivation, tedious process, loss of time, etc. Ignoring those human factors is forgetting we are humans. All of which comes down to competition on limited positions or funds. This pattern is found universally across countries although claims are made that the peer-review process is guaranteed impartial and flawless in full integrity. Sadly, the peer-review process was not seen as such by many prominent scientists such as Einstein who experienced an initial serious backlash that almost totally barring him to pursue a research career.

4.2 How to champion imagination and free will?

Today, grant-peer-review is a human process. Artificial intelligence (AI) seems to be a method of eradicating conflict of interest as well as avoiding redundancy. Science is accumulating such overwhelming data far beyond the reach of the human mind. An efficient way to remove human factors and conflicts of interest would be to make use of AI in the research grant peer-review process. However, the limitation on the imaginary dimension makes it problematic to use. Furthermore, the contribution of generations with more time available and less susceptible to conflict of interests such as the Baby Boomers (Gen_{n-1}) and in some from Silent Generation (Gen_{n-2}) may be an additional option to discuss.

The overarching research-peer-review process determines scientific discoveries. Wrongly performed, it may preclude future potential discoveries and become a serious threat to progress. An exaggerated amount of money may wrongly be allocated and lead to the Eroom's Law, the reverse of Moore's Law [13, 14]. Where progress becomes inversely proportional to the investment, with a negative ROI. The issue goes beyond the duty of integrity. A biased peer-review bound in a gilded cage may become a threat to the freedom of research where imagination is key. Progress encompasses a vision of the future. Peer-review of articles is less exposed to conflict of interests because it intends to go to the public for some research already implemented.

5. Intergenerational transfer and influence on the brain

5.1 Role to protect and nurture children's minds

Brain development in children is affected by their social environment. A social experience at this time is instrumental to the acquisition of social, cognitive, and emotional competency [15]. Adverse experiences such as poverty, neglect, hostility, and violence, are associated with a higher risk of developing mood and behavioural disorders. Adversity in the mother's early-life affects mothering behaviour in later-life and how these effects may be perpetuated inter-generationally. Parental spatial training before fertilisation facilitated spatial learning and memory in their offspring

likely through increased expression of BDNF, phosphorylated ERK1/2, and acetylated H3K14 in rats [16–18].

5.2 Transfer, evolution and genomics

A modelling approach model of coevolution of the brain size and mortality, aka life history theory (LHT) was devised [19]. Mathematical and statistical modelling investigate brain growth in species and the development as an investment in the physiology and brain abilities [19]. In a physiological manner, the evolution is measured in terms of newly acquired somatic tissue—muscles, brains, etc. In terms of community and social senses, those acquisitions include body abilities and strength, skill, knowledge, and other abilities. Because such abilities variably decline depending on physiological ageing, allocations to maintenance can also be seen as investments for a societal benefit. Therefore, the competition present–future fertility-reproductivity is related to brain size and performance. This tradeoff can be considered as an optimal societal advantage of abilities versus reproduction. The brain provides a special physiological, behavioural, and societal advantage. The brain has the ability to transform present situations into future performance. The development of the cerebral cortex amongst higher primates provides increased gain in abilities. The natural selection of the neuronal system involved in memory depends on the sacrifice and advantage realised over the organism's lifetime. Higher development of the brain early in life sacrifices huge energetic cost and time as well as maintaining the brain activity throughout life. During the first year of life, 65% of the total body expenditure in humans, for example, is used to support the development of the brain. In adult life, the brain weighs 2% of the body mass while hacking 20% of the total body energetic expenditure. Another potential cost of the brain is lower performance early in life driving the incompetence of human infants, and even children, in many motor tasks. The ability to learn and to develop across generations of the brain becomes a special form of highest societal gain with coevolution of intelligence and longevity. A longer life allows more contributions from highly skilled individuals. The emergence of our species reductions in "pre-programmed" behavioural routines as it is the case in other species. Such routines may decrease early performance and further development [19].

Taking these costs into account, the net ROI, sacrificing for the human brain is realised over time. In a niche of restricted learning, a large brain is at risk of a relatively small impact on productivity later in life but higher costs early in life [19].

5.3 Intelligence/longevity tradeoff: Cooperation

The concurring blooming of intelligence and longevity in humans followed entry into a niche that demanded an extended protected childhood learning phase, where investment in this phase was made justifiable by higher adult productivity. Such a tradeoff requires societal large intergenerational resource flows [19]. It is not totally understood why advancing brain development is correlated to lower fertility to explain the thousand-fold difference in insect life spans. There is a natural selection pressure to extend the portion of lifespan of skilled adult-human. This is a ROI, a sort of payback to the societal contribution in childhood and the longer time required in life to acquire further complex skills. Intergenerational resource transfers and other late-life contributions in social species may be selected for post-reproductive longevity [20]. Fertility declines with age and exposes to mutations. Unlike other species, humans benefit from extra lifespan savers beyond the reproductive window. Mutations occurring in

this "selection shadow" are invisible to other species' observing "normal" selection pressure [20, 21]. Human menopause and post-reproductive longevity are unique amongst primates and across species, yet unexplained by classical approaches [20]. It suggests that early life societal unproductive investment, transfers, and other social processes may alter selection via a mechanism missing in classic evolutionary models [20]. Therefore, promoting selection against late-acting deleterious alleles, they prolong lifespan. Constant societal pressure for highly skilled professionals demand and increased time to train skew the lifespan far beyond the reproductive window. This indirect fitness contribution could drive selection for survival well beyond the ages of reproductive cessation. This is a fast trend already observed across the globe, including in developing countries. In the near future, we may imagine that the productive high-skilled professional window will extend towards and beyond the centenarian zones to increase the required societal ROI. Modifying the force of selection that shapes the age profiles of survival and fertility is fundamental to fitness and societal productivity. While human menopause has been theorised to result from life history tradeoffs or intergenerational conflict, other observed patterns of reproduction as a given and model selection on extended post-reproductive lifespan due to food and other transfers. In evolution, chimpanzees are the most recent closest common chimpanzee–human ancestors 5–7 million years ago. Chimpanzees are rapidly self-sufficient foragers after a few years albeit they will never produce large food surpluses. Chimpanzee feeding ecology is thus not expected to cause selection pressure for late-adult survival [20, 21]. Chimpanzees fail to learn new skills and behaviours diverging from their imprinted inherited species habitual repertoire [22]. Unlike human-hunter-gatherers relying on others for up to three decades of high-skilled training ultimate goal, is to later generate surpluses and high-value societal ROI through adulthood and into late life. Therefore, why are intergenerational transfers not universally spread out across all species if they are so valuable? Transfers are costly to donors. However, the sharing of resources is felt less a burden when donors enjoy surpluses. Thereby, Gen X (Gen$_n$), will vouch for yet unproductive Gen Z (Gen$_{n+2}$), Gen Alpha (Gen$_{n+3}$) and for still productive Baby Boomers (Gen$_{n-1}$), and in some cases, Silent Generation (Gen$_{n-2}$). World societies capable to vouch for across generations in such a way are the ones enjoying the best "well-being" and GDP per capita. This is also correlated to scientific progress generating the greatest added-values other than depending on natural resources. This conclusion applies to countries that do not rely only on "distorted GDP-per-capita for tax havens", whose economic data are artificially inflated by tax-driven corporate accounting entries. The well-being of an individual includes surpluses across board, including all basic needs. Well-being also means burden-free, from food to social welfare and security, and also includes tuition payment. All extra societal time lost includes time to find a spouse/intimate partner so individuals may focus on the high-skilled duties required for the societal payback. The ability to motivate the psychology and produce a surplus in a complex subsistence niche is a prequel to intergenerational transfers. Donors can recoup losses by targeting kin so benefits increase inclusive fitness via complex cooperation [20]. Social systems fostering multilevel complex cooperation help to make intergenerational transfers more profitable.

5.4 Intergenerational brain structure similarities

Structural neuroimaging (MRI) can assess intergenerational transfer effects on brain structure, function, and behaviour by investigating brain similarities in caregiver-child brains. Significant structural brain similarities exist for mother–child

in the reading brain networks for measures of local gyrification, surface area, and grey matter volume [23]. Observed structural brain similarities in local gyrification, surface area and grey matter volume are specific to mother–child pair [23]. The human brain weighs 2% of the body mass and consumes 20% of the total body energy. The oxidative metabolism/ATP pathway is the mainstream provider for the exorbitant brain energetic expenditure [23]. The main portion of which is dedicated to the synaptic transmission. It also promotes synapse growth and plasticity. It has been suggested that parental physical exercise may promote offspring's structural brain development by 12% likely through an increase by 16% of neurogenesis. These structural brain changes are associated with a significant 21% improvement in neurobehaviour, such as improved learning and memory, and reduced anxiety [24].

6. Justice and scientific progress

6.1. Learning justice, woman equality and human rights

Justice is likely one of the most challenging disciplines that the human mind faces. Would human justice exist? Would justice remain beyond the reach of the human mind? What is the role of intergenerational cooperation there?

Intergenerational transmission is a key factor to pass on the sense of justice across generations. How intergenerational information is passed on from generation $Gen_{n-\infty}$, let us say from immemorial times until this day is moulding today's populations. Today several generations are living together on this planet, the Silent Generation (Gen_{n-2}), Baby Boomers (Gen_{n-1}), Gen X (Gen_n), Millennials Gen Y (Gen_{n+1}), Zoomers Gen Z (Gen_{n+2}), Gen Alpha (Gen_{n+3}). It heavily depends on the quality of the education system.

6.2 The point of view of the woman. The state of women's rights today and the intergenerational culture

This issue was highly neglected for centuries. The respect of human rights, women's right to equality and equity, protection of children, and their access to education are all educational intergenerational education. Any form of violence passive or active against women such as hierarchical use of powerful leadership positions should be described by Gen_i to the next generations Gen_{i+j} and hereby banned. It becomes necessary to bring a further dimension to humankind, the woman's dimension. Survival of humankind at darkest times of famine, plagues, diseases, stillborn, mother's deaths, invasions, and mass killings, never left any space of expression for women as they were the pillars of our species' continuity. I wanted this section to be a woman's tribune in their own terms, a woman's hallmark. Therefore, I merely quoted their sentences, unaltering their words. Bel Hooks describes "Fear is the primary force upholding structures of domination. It promotes the desire for separation, the desire not be known" [25, 26]. The culture of male domination is established on the cultivation of fear to secure obedience. Modern society occults the hidden fear of women which they apprehend to express. Teaching generations Gen_{i+j} about a woman's freedom to decide her own self, inner self, and body, her whole free will is key for future generations. The contentment of a woman and its respect must be taught and explained. Julia May Jonas explains in her book: "Her desire is wrapped up not only in what She wants but also how She perceived inside that want" [27, 28]. Woman's contentment must be respected and time

to formulate it as well. There's another way to envision gender relations in a peaceful way rather than confronting them. While Joy Harjo speaks about her own learning she exquisitely says: "She taught me that there is no separation between being a poet and being a mother and lover. All are warrior roles" [29, 30]. As a native American Joy goes on in a peaceful approach in a beautiful way: "We keep our vibration higher by prayer, by kindness, by taking care of what we were given to do … by speaking that which holds truth". Another of woman's right expressed by Joshua Prager as: "That a woman would protest abortion and yet seek one herself was no surprise to Boyd… Abortion was far too commonplace to be had only by those who supported it" "In ancient Greece, she would have had no problem ending her pregnancy" and "The Bible Old and New Testament contains no text about abortion" [31, 32].

6.3 Optimism for woman's rights? The role of intergenerational education

Another way women see the world, their inner selves and the outside world, Olga Tokarczuk portrays her feeling as: "Sometimes I feel as if we're living inside a tomb, a large, spacious one for lots of people… The prison is not outside, but inside each of us. Perhaps we simply don't know how to live without it" [33, 34]. Later, Olga extends her thought to the freedom and compassion for animal welfare as: "People have a duty toward Animals to lead them – in successive lives – to Liberation. We're all traveling in the same direction, from dependence to freedom, form ritual to free choice". The beauty of compassion and empathy, free will, and the notion of respect for the living suffering in pain. This is not easily self-taught, this is the legacy of generation Gen_i to the next Gen_{i+1}, Gen_{i+2}, … Gen_{i+j}. the opposite view may also be professed entailing detrimental results to the community. Another view of compassion as felt by another author is particularly moving: "They are fungi that keep tree stumps alive. They attach two trees and can transfer nutrients between them. Occasionally, then, when one tree falls, and can no longer catch the light with its own leaves, it is still fed by the others…" [35, 36]. The realm of plants has established for itself compassion and solidarity for others. Away from cultural standards intended to govern woman's emotion, Annie Ernaux goes: "I do not wish to explain my passion – that would imply that it was a mistake or some disorder I needed to justify – but simply to describe it" [37, 38]. Freedom of choice, freedom of lifestyle, Annie Ernaux, Nobel laureate 2022, is outraged that males may have all rights and freedom and women repressed. Therefore, she will not justify her passion, behaviour, and attitude. In the darkest times of humankind's survival, wars, destructions, invasions, killings, rapes, plagues, and diseases, leaders and men of God of all religions worldwide enacted drastic policies. Women were bearing babies, and their role was restricted and dedicated to this goal. Survival was at stake and extreme measures were taken. Women were dominated by men, and this has become a societal and religious tradition to this day. Yet today many societal and religious policies still rely on this ancient concept without amending nor revising. Annie still goes on: "Knowing whether I would agree to pay the imaginary price of disaster is a sure means of assessing the strength of my desire" [37, 38]. Annie was totally aware that societal and religious dogma would be repelling her free-will as a woman and condemn her for breaking the rules. She accepted her fate and decided to go for it. This was expressing courage at a time opprobria, societal, and religious shame would fall on her soul. Then, in the process, she discovered her identity without hurting anyone else. Annie says about it: "I measured time differently, with all my body. I discovered what people are capable of, in other words, anything: sublime or deadly desires… Without knowing it, he brought me closer to the world".

6.4 Consciousness of today's woman identity, an intergenerational learning

A step towards woman humiliation and belittling was crossed when Xochitl Gonzalez says: "And I watched his world get smaller… People with big visions, Prieto, aren't meant to shrink themselves" [39, 40]. Prieto, her brother from Puerto-Rican extraction and a prominent NYC politician, had his career jeopardised by his potential coming out and the disclosure of his HIV status. It felt naturally normal that the male ascended the social ladder while the sister lagged. The sister was on the edge of also becoming public appearing on morning shows thanks to her flair and being "business extraordinaire". Then Xochitl goes one step further saying: "Your admittance to this place is nothing more than a minuscule gesture to reaffirm the myth of an American meritocracy… a system in which the only thing you're certain is to lose your sense of self". Xochitl also mentions how debt is one of the man's great tools to keep women and underprivileged people oppressed. For those who travelled the world, this scheme replicates itself across borders around the globe. Xochitl keeps going: "My whole life I felt like my skin was too small for what was possible for me – as a Woman, as a Boricua…". Xochitl highlights here her fate… the destiny of a woman to be belittled in a man-designed world. Sometimes, we may hear societal leaders, politicians, or religious, suggesting that it is a curse to be born a woman. Another brilliant way of looking at things, by Bernardine Evaristo, in a humoristic way: "I've been really interested in finding the form that fits what I have to say, rather than fitting what I have to say into any of the traditional forms" [41, 42]. In a man-made system, there was no room to truly express women's feelings always traditionally repressed. The format and the tribune to publicly speak out are on man-design with suppression, loudly interrupting while speaking. The men's club shares no mercy for outliers and outlaws. Another interesting way to approach life together, is to look at the animal realm, and how they perceive the world, Ed Yong explains: "Every animal can only tap in a small fraction of reality's fullness. Each is enclosed within its own sensory bubble, perceiving but a tiny sliver of the immense world" [43, 44]. The bubble, the "umwelt", may be seen in Freudian psychanalytic dimension as the inner self. All living creatures have their own umwelts. Whether it is perceiving electric, electromagnetic, or ultrasounds, each umwelt has a different value for each individual. Women and men have a world of their own within their inner self. Becoming conscious and discovering it in others, allows to rally all members for a more proficient, better society and well-being. Playing a game of eleven, five males, six women, will be no match compared to a team made of five males only. Suppressing, and repressing six women on the team will preclude wealth, GDP, and the well-being of the community. This is shooting oneself in the foot. The restriction of the tunnel vision of our inner self, our umwelt, may be lifted, hereby, opens to the world. The identity as a woman in a world of male writers was majority was seen from the male angle. Finding their true identity, was challenging. This is what Catherine Lacey said about it: "She lived in a play without intermission in which she'd cast herself in every role. What I had begun feeling had changed me into a person who could not make sense to herself until X introduced me to who I was. I'd somehow known her before I knew her…" [45, 46]. Another way women may look at their personalities, form a grandmother with a very young mind: "Good luck! Have fun! Don't work too hard! She says that where she's from it's the most subversive thing you can say because they didn't believe in luck and fun was a sin and work was the only thing you were supposed to do" [47, 48]. An approach more energetic was: "We need tragedy, which is the need to love and the need… not just the need, the imperative, the human imperative… to experience joy. To find joy and to create joy. All through the night. The fight night" [47, 48].

6.5 Crimes against women, humanity and our intergenerational duty

Crimes against women or children during the war are considered as "Crimes against Humanity". Women, as innocent civilians, have long been the targets of suffering and martyrdom in the hands of males. The atrocities are underreported and are an "accepted" aspect as "normality" in all conflicts. The reason is that it always happened since the immemorial darkest times of humankind, and not much attention was given to that. Before and beyond the killing, women experience humiliation, belittlement, degradation, beating, torture, rape, mutilation, and death. This is a totally inhumane situation beyond merely killing and thereby considered as "Crime against Humanity". And tried at the International Court of Justice of the Hague. This should be part of the handbook to teach future generations.

6.6 Written statements in world best-selling books and intergenerational impact

It is obvious that written statements in major popular books have great impacts across generations (**Figure 1**). A written statement of violent killing or discrimination will perpetuate and remain across generations forever across the millennia. The


Figure 1.
Influence of various factors on discovery and progress. Positive factors are illustrated in blue, while factors negatively influencing discovery of concepts are red. A discovery directly depends on creativity. The pillars of creativity should offer a peaceful and safe environment for the mind. Any unrest or perturbation of cooperation between individuals precludes creativity. Collaboration to creativity is key and all potential individuals should be recruited based on talent without discrimination. Some factors may have not been initially viewed as direct short-term benefits and were later observed as long-term gains. All factors are influenced by intergenerational mandatory education, support, cooperation, which provide self-confidence. Certain notions don't exist naturally in other species and require an educative process in humans. An initial investment of energy is necessary with long-term return. See text for further details.

impact on each generation the worst outcome would be to find discriminatory or racist statements in a popular book. The legacy of written discriminatory sentences will endlessly cross downstream generations to the $Gen_{i+\infty}$. Such written statements must be discussed, criticised, and contradicted with different means, annotations, or else. In each generation, worldwide, approximately 5–10% of individuals will be radicals prone to violence. At the end of WWII, Mein Kampf, the Nuremberg trials, indictments for conspiracy, crimes against peace, war crimes, and crimes against humanity were pronounced. However, no formal ban was retained about the book "Mein Kampf". Rather annotations, comments, and education to prevent racism and antisemitism were recommended. Preventive action must be taken to mitigate or annihilate further infinite spreading across generations.

7. Specific transmission from professor to student

7.1 Intergenerational teaching how to learn: mentor - student, basic learning

Wittgenstein emphasises the inner self as pedagogical [49]. During the first years of higher education, intensive intellectual stimulation may reactivate the forming and re-structuring of the self. It is crucial to unveil abilities potentially concealed within the self as early as possible when the developing brain is responsive to moulding. Whilst instilling awareness of one's abilities, it is essential to expose students to a cross-disciplinary learning strategy that provides opportunities for excellence in higher education. The professor-supervisor becomes a "mature *self-object*" [50], and serves as a mirror for empathic resonance within the learner. This resonance plays an essential role in promoting "polymath learning", and is the path enabling the cross-disciplinary vision and inspiring the next generation of scientists. The mirroring effect and idealisation reinforce the student's self-esteem [51]. Furthermore, a sensitive supervisor conveying positive self-concepts raises the student's self-esteem. Self-esteem is especially salient in periods of intense intellectual stimulation, causing a re-structuration of the self. Notably, students with excellent work ethics and resilience are prone to this restructuring phase and more willing to embrace polymath learning. Discoveries result from the emergence of influential and novel concepts that change the vision of the world. The hallmark of *futuristic teaching* is to provide a holistic development empowering learners with the knowledge, skills, and competencies, *whilst preserving imagination and creativity*. Developing a broad vision of the world allows one to embrace the rapid exponential pace of discoveries. Imagination is a driving force when crossing disciplines and provides a fertile intellectual environment for innovation. It is imperative to teach students how to think logically for developing a critical mind.

7.2 Intergenerational strategic transmission on how to learn

"Strategic teaching" is a methodology and a decision-making process to evaluate pedagogical factors including assessment of students' characteristics, program goals, and integration of syllabus into the curriculum. Analysis of these factors determines the educational methods made use of by the educator. Digital teaching and learning are at the frontline of a college student's education. The role of the professor is essential in ordering the topics, organising information, and creating an environment for logical thinking. The educator needs to "diagnose" the affective and cognitive state of the learner. The goal for students is to master key concepts and skills in their discipline. Teaching the student

how to learn is a critical component for exponentially acquiring knowledge. Dynamic interactive teaching is a way to immerse students into a topic with active learning involving discussions amongst their peers. "Supervisions", "Peer Instruction" teaching techniques further foster the learning process. The role of the educator is to pave the way for students to learn and to teach them how to learn. I applied these teaching techniques to undergraduates with successful results. Feedback from students is essential to improve teaching methodology and course content. Based on the student's characteristics (undergraduate, premed, resident, clinical fellow, doctorate, or post-doctorate research fellow), specific feedback is required to further refine the pedagogical methodology. Personalised teaching time and supervision with students are key. For future engineers, scientists, or physician-scientists, it is essential to motivate and engage them as early as possible in cross-disciplinary critical thinking.

PowerPoint® and other programs are great tools in lectures and inserting one or two minutes of video is engaging. However, a classic pitch while sketching on a blackboard regains popularity amongst students. It provides a pace for student learning and critical thinking. Sketching on the blackboard captures the audience, creates confidence, and establishes a connection with the students. Using a variety of pedagogical methods during a formal lecture sustains a high level of attention, checked on eye-gaze and facial expression. A less formal one-to-one preceptorship (*e.g.,* research fellows, residents and clinical fellows) is also a powerful methodology. Lectures "A Cappella", with voice and board only, withoutany support (PowerPoint®, paper) have a powerful impact.

8. One step beyond

8.1 The sparkling

The idea, the invention, the Eureka, is real thunder and lightning often occurring at unpredicted times. Ideas pop up in salves like a staccato. They seem to come from an association of various disciplines.

8.2 How to make a genius?

Intergeneration transmission with free will is key to produce progress. The previous generation is the enabler of the next. A polymath is an individual who flourishes a high level of expertise, created in several fields of science, technology, engineering, mathematics, and the arts. Polymaths stem from multiple interests to inform their avocations. In modern times, polymathy is attributed to eminent scientists, artists, creators, and performers who contribute significantly to many fields [52]. Leonardo da Vinci (painter, draughtsman, engineer-helicopter designer, scientist, theorist, sculptor, and architect), Michelangelo (sculpture, painting, architecture, and poetry), John von Neumann (mathematician, physicist, computer scientist, and engineer), Johann Wolfgang von Goethe (poet, novelist, playwright, natural philosopher, and statesman), and Steve Jobs (engineer, extraordinary businessman, and marketing mastermind) were polymaths. The trait of a unique genius is not always publicised; sometimes the career remains a private matter. Furthermore, some of those individuals may prefer the peaceful shade to the spotlights. Polymathy may not be a fully innate fixed personality trait [52]. It needs effort, and must always be nurtured and reinforced. The strides on the stepladder of creativity encompass several fields of interest. Therefore, polymathy

is also a lifetime attitude and requires energy to pursue the dream. Polymaths may reach a level of unusual hyper-focused state to solve a question for hours, even days. The highly gifted are never satisfied, constantly need to curiously learn to improve, and they do not experience "the good-enough-point, I am done now". Everything in their minds is subject to curiosity and questions opening the door to more mysteries. When spotted in children, this should be praised, not refrained. The educational systems do not always welcome allocating extra time for questioning. Polymaths soon get bored listening to standard trivial discussions on well-battered paths, disliking small talk. Meeting kindred minds, another gifted, makes them feel energised by a secret synergy, linking their inner selves in a matrix. Amongst kindred minds, they like discussing unprepared diverse topics such as science, social, politics, poetry, literature, history, personality development, intergeneration's emotional heritage, learn languages/cultures, and striving for a better world. Those individuals become inborn leaders and influencers whether they like it or not, whether others attempt to refrain from their influential gift to spread. These different characteristics may also incite jealousy and antipathy. Those characteristics set them apart. On the other side of the coin, their "apart" situation feels grim to polymaths. Being so different makes the polymaths appear like freaks. Since their next move is unpredictable from "normal" minds, they run across trust issues. They, who are often misunderstood because their next move cannot be anticipated. This is grounds for negative unjustified mistrust. Polymaths are challenged to gain trust and the duty of the Generation Gen_i is to leave leverage to potential polymaths of Generation Gen_{i+1}. Polymaths are commonly disliked in our societies. However, major discovery strides. In a few studies, the highly gifted students were observed to have higher levels of human values, compassion, and altruism than their normal peers, and to be more sensitive regarding love [53, 54]. A significant percentage of highly gifted (IQs > 140) are being systematically and, often inappropriately, excluded from the population tasked to resolve the biggest problems of our time or in charge of social, scientific, political, and economic institutions [55]. Success encompasses also resilience to stressors, pressure, and adversity. This results in a loss of assets for society. The role of generations upstream is to foster a more resilient personality of those individuals with behavioural therapy or coaching. Often despised by the polymath, if they are crazy enough to dabble instead of devoting themselves to a single "predestined inborn" calling, those unfortunates regularly earn the lifetime-dishonoured avatar of "Jack of all trades, master of none" [56]. So, why are polymaths going extinct? Our era is tunnelling skills into deep specialisation. Polymaths are largely an unnoticed force in the work market, but it's also the future of problem-solving.

9. Conclusion

It seems like progress and well-being occur in societies where most freedom, equality, and equity amongst individuals are promoted. In species' evolution, humans are remarkable, hallmark of its success is the gift of one generation to the other. It seems that genomics and brain evolution in humans were directly correlated to the amount of sacrifice that one generation is ready to accept downstream and upstream. The amount of investment without immediate return of one generation to the closest, next, or previous, is driving scientific progress and well-being. Further valuable contributions upstream and downstream are then enabled concurring to progress. In species' evolution, such endowment of a generation to the closest, downstream, and upstream may determine genomic variation and further brain development across generations. The ROI, return

on investment, depends on how much a generation (Gen_n), is ready to invest in the next (Gen_{n+1}..., Gen_{n+x}), and previous (Gen_{n-1}, ..., Gen_{n-x}). Potential feedback of this intergenerational interaction, this endowment or long-term investment, is correlated to mould genomics positively and brain performance to directly influence the evolution of the species. Intergenerational cooperation was a requirement in the evolution of the human species and remains a sine qua non requirement of progress. Recruiting, and registering as many talents as possible is the future of progress. All contributions, of women and underrepresented communities, in the form of justice, equality, equity, and tolerance should be welcome for the well-being of humans in a modern society. Sub-liminal abstract signals of intuition and imagination are invisible because they are imperceptible to the senses. The mind may read them under specific circumstances. Our sense of justice and tolerance will determine our ability to adapt and to survive the challenges ahead.

10. Methods

Different methods were used and inspired by the Harvard Business Review, especially for the metrics of Method 2 and 3 ([57–60]; Turban, [61]). (1). Field Research: As a STEM scientist, I am focusing on intergenerational cooperation influencing scientific progress based on three decades of personal direct observations of academic STEM research across fields. My research and teaching are academic in various fields and operational in the space program. This experience of scientific progress is also with industry, designing medical devices collaborating or founding startups. As a physician, I also see patients in terminal phase. I hear them calling for help while funds are periodically allocated in inherent full conflict of interest environments across countries and continents. Ignoring the patients suffering, those environments are totally unfavourable to progress. I analysed and suggested how intergenerational cooperation is key to improve the state-of-the-art. (2). I performed a critical literature review, focusing on scientific progress with the enclosed keywords listed. To remain impartial and independent, I avoided citing new findings, nor citing my own publications. The articles referred to are analysing the genomics-human brain evolution across generations from $Gen_{n-\infty}$ (neolithic), until today's generations living together on this planet, the Silent Generation (Gen_{n-2}), Baby Boomers (Gen_{n-1}), Gen X (Gen_n), Millennials Gen Y (Gen_{n+1}), Zoomers Gen Z (Gen_{n+2}), Gen Alpha (Gen_{n+3}). I presented the invisible gain of investing at a loss in the future, in terms of ROI, and later long-term gains. (3). Structured Interviews: Intergenerational transmission of justice is also a factor of societal scientific progress and well-being. An analysis of structured interviews with various authors advocating women's rights, and underrepresented communities is presented. Those interviews were conducted by Ms. Natalie Portman, once a month, over the course of 3 years. Ms. Portman was guiding the authors with specific questions, Natalie was selecting quotes, and then we were further discussing the quotes in her book club. I decided to include selected short quotes to provide a platform for underrepresented voices articulated in their own words. I believed that a direct testimony in their own words would have more impact than any transformation in sanitised and polished traditional academic language. Equality, equity, and justice are analysed in terms of net societal benefit in terms of general well-being. The intergenerational educative role and support are key players there. (4). Case-Study Reviews: Intergenerational guidance and support are instrumental to nurture cooperation between talents. A brief context of teamwork between genius/polymath and other forms of talent on the teams spearheading future societal progress.

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Chapter 14

Can Intergenerational Mentoring Prevent Ageism?

Keri D. Larsen, Myia Graves and Rylie Broussard

Abstract

Intergenerational mentoring is a way to break down barriers between different generations by utilizing mentoring. Intergenerational mentoring with older adults provides opportunities for activities and learning for young people. Various studies have suggested that providing opportunities for older adults and younger adults to spend time together could be an excellent opportunity to debunk many of the beliefs that young people may have about older adults. Stereotyping or discrimination of someone due to age is known as ageism. Empathy has been shown to be associated with ageism. Higher empathy scores were negatively correlated with total ageism scores meaning that the more empathy a person has, the less ageism that they possess. Therefore, it could be that providing opportunities for the generations to spend time together could increase their empathy for that group and reduce their ageism.

Keywords: intergenerational mentoring, ageism, mentoring, empathy, successful aging

1. Introduction

The word mentor comes from the Greek word meaning enduring. It is defined as a sustained relationship between a youth and an adult. Intergenerational mentoring is a unique way of bringing two groups together to share their strengths while providing a mutually beneficial relationship. This social relationship that is mentoring has two main roles as experts and as role models. In its natural form, mentoring occurs because of friendships, teaching, coaching, collegiality and counseling; at the same time, it can also be planned. This planned mentoring occurs through structured programs in which mentors and participants are selected and matched through a formal process. For example, new teachers are paired with more experienced teachers to help them learn how to be an even better educator or students that start a new sport may be paired with someone who has been playing that sport for a while so they can learn what they need to know to succeed. Mentoring can be facilitated in so many different situations.

According to Butler, ageism is discrimination against individuals or groups on the basis of their age [1]. This concept was patterned after sexism and racism. Butler later refined his concept of ageism to a "process of systematic stereotyping and discrimination against people because they are old" [2]. Regardless of the definition that is subscribed to, ageism has been shown to have a negative impact on a person's physical and mental health; which in turn affects their quality of life. Since ageism is

an increasing problem in society, it would be wonderful to find a way to eliminate it. To put this into perspective, is it possible that intergenerational mentoring is a way to increase empathy and value for older adults and, in turn, help prevent ageism? Most of the research discussed in this chapter supports this in the affirmative.

2. Defining mentoring

In the United States, older adults are the fastest growing subgroup of the population. Due to growth in this population, there are many societal concerns of which ageism is a major concern. Mentoring presents a unique opportunity for positive intergenerational interactions to reduce the gap between diverse generations [3]. Mentoring is a kind of activity that involves establishing an ongoing in-person relationship with another person. A mentor is someone who shares their knowledge, skills, and experience over a prolonged period of time. Intergenerational mentoring is a type of mentoring where older adults provide guidance to younger people by sharing their experiences and wisdom [4]. For instance, an older person can provide consistent support to a younger person going through a difficult situation or period in life. Intergenerational mentoring participants may vary in age from preschool through university students and settings such as older adults living in long-term care facilities or independent community dwellings [5]. This collaboration between younger people and older people presents many chances to interact in meaningful activities that can have mutual benefits.

The growing problematic behaviors in younger people, such as criminal activity and high-level drug use, has increased [3]. Older mentors, particularly those who have experienced similar situations as high-risk youth, have been found to be effective in reaching out and relating to those who feel misunderstood by family and community members [4]. It is important to create positive environments and to have engaging experiences despite their life circumstances in order to encourage the younger individuals to strive for their full potential. And, for some older adults, this results in having a reason to continue on and have a purpose in life. Mentor expectations are to serve as a guide for psychological support which can reflect positively on a young person's self-esteem.

As previously mentioned, intergenerational mentoring is also beneficial for older adults. Older adult mentors who participate in intergenerational mentoring programs report an improvement in physical health, cognitive function, and psychosocial well-being [6]. Available evidence suggests that intergenerational mentoring and activities may improve older adults' sense of self-worth, self-esteem, and life satisfaction. Overall, intergenerational mentoring is a promising approach to decreasing the gap between generations and increasing the understanding of the extent to which different generations can support one another.

3. Mentoring and intergenerational relationships

Intergenerational relationships prove themselves to be important as they are described as "lifelong, continuous, and dynamic parent-child relationships and family-based interpersonal relationships across generations" [7]. These relationships can bring forth positive feelings, provide an exchange of resources and support, and deliver opportunity and structure for intergenerational interactions, which can be applied to

all generations involved [7]. A study, conducted by geriatric RNs, Wu and Chiou from Taiwan, enhanced these ideas through observing 158 older adults (ages 60 and above) who were described as having a low quality of life and having depressive symptoms. Wu and Chiou [7] determined that higher depressive symptoms were significantly associated with poor social support and intergenerational relationships, which shows how important mentoring is for all of those involved. However, it is important to note some limitations of the study: convenience sampling; a number of adults with severe depressive symptoms that denied participation, the number of children and grandchildren each older adult had, and causal inferences of risk factors like social support and intergenerational relationships, all may have affected the valid results of this study.

It has been determined that intergenerational relationships and mentoring may bring about many benefits to the older population. With relationships connected to the younger generations, older adults can establish a sense of self-importance by passing on knowledge to others, as well as improved cognitive function, physical health, and social activity [8–10]. Furthermore, mentoring provides a self-given purpose through spending time teaching and learning from those in other generations [10, 11]. On the other hand, intergenerational relationships can also help with the reduction of negative stereotypes that ageism promotes [10, 12]. Mentoring can provide an escape out of comfort zones that older adults may linger in, and provide feelings of joy and freedom from the impending process of aging [12].

4. Issues related to ageism

In this chapter, we have discussed mentoring and its benefits for so many different individuals and groups of individuals, in addition to many different settings. It seems that mentoring in its many forms is beneficial to so many. Let us take a look at the concept of successful aging.

4.1 What is successful aging?

Life expectancy has increased because we have better medical care and are starting to focus on prevention. Thus, people are better able to take care of themselves. However, what good is longevity if a person does not have their physical or mental health? Furthermore, one person's idea of what is meant by successful aging may be different from that of another person. Successful aging has come to be equated with the quality of aging, but what does it really mean? High physical and psychological functioning in old age and being free from disease is how some define successful aging. For many people, successful aging brings about ideas of "life satisfaction, longevity, freedom of disability, mastery and growth, active engagement with life, and independence" [13].

As part of a research project, one of the authors was afforded an opportunity to ask a group of 50 older adults what successful aging meant to them [14]. See **Table 1** for several of their responses.

As you can see from the responses, people have a vastly different idea of what successful aging is to them. All of these ideas denote positive attributes or things that most people want to ascribe to as we get older. But, where does that leave the person that is disabled or has limits to their independence? Does that mean that they are not aging successfully? By defining successful aging, are we excluding many older adults that do not fit the definition? Additionally, what would being excluded from that grouping do to the

1. enjoying life

2. being gracious with myself

3. staying in shape

4. eating right and keeping my weight managed

5. having fun in life

6. being independent

7. having a social life

8. learning something new each day

9. not taking myself too seriously

10. plastic surgery

Table 1.
What is successful aging?.

mental health of those individuals? Therefore, it seems that we, as a society, need to have some concept of successful aging to work towards. So, what is missing?

4.2 Ageism defined

Robert Butler coined the term "ageism" in 1969 [1]. His definition stipulates that ageism is a process of systematic stereotyping and discrimination against people because they are old, just as racism and sexism accomplish this for color and gender" [2]. According to the World Health Organization, ageism refers to stereotypes, prejudice and discrimination toward others or oneself based on age [15]. In other words, ageism refers to how we think, how we feel and how we act toward others or oneself based on age. Yes, a person can have stereotypes about themselves. If a person feels that older adults cannot benefit from exercise then they likely believe that about themselves and do not exercise – a sort of self-fulfilling prophecy. Could this discrimination affect our health and serve to prevent successful aging?

According to Allen et al., adults 50–80 years of age experience ageism every day [16]. The World Health Organization reports that 50% of the world's population negatively stereotype based on a person's age [15]. What are the implications of this phenomenon of ageism on the increasingly enlarging group of older adults?

4.3 Ageism and health

Ageism has many diverse but negative health effects for the older adult population. For example, the discrimination and community-perceived assumptions about the aging population can cause negative impacts on the mental, social, and physical health realms which can lead to a decrease in quality of life and eventually in longevity.

The mental impact of ageism, such as being seen as unimportant can cause negative self perceptions that can issue real self disvalue. Hence, why "the most frequently examined condition, depression, showed evidence that ageism was associated with onset of the condition and a lifetime of depression" [17]. Moreover, the impacts of

ageism may cause cognitive decline. Individuals dealing with depressive symptoms over time that are being negatively affected by age stereotypes from society are more likely to develop Alzheimer's-disease-related brain changes [17].

Ageism can also affect the social life of an older person, which may be one of the most determining factors of how deep the effects of ageism can be. To illustrate, older adults navigate a narrower life-space than younger people; life space refers to the spatial area in which a person moves about and interacts with the world. Upon retirement from the paid workforce, older adults spend more time in their immediate neighborhoods [18]. With that said, the older generation is comfortable to limit themselves to only expending time and energy to what needs immediate attention. This could cause them to neglect further social interactions with others in their age group and those in the younger population. As a result, they may not continue learning new skills on how to communicate and understand the always advancing generation. Perhaps with increased socialization, such narratives might stall perpetuation of age stereotypes and reveal the problem of ageism toward older adults [19]. Furthermore, socialization of older adults is important as it can lead to group identification that enables the application of self-compassion and empathy to motivate those to continue to search for a purpose in their lives, learn new things, meet new people and engage in activities that they find fascinating and rewarding. However, ageism can cause discrimination, causing attitudes of feeling out of place which could impede their pursuit of their definition of successful aging.

4.4 Prevention of ageism

The looming question here is - Can Ageism be prevented? According to the World Health Organization, in conjunction with the United Nations, there are three strategies that may lead us toward eliminating ageism. Those strategies include the following: policies and laws; education; and intergenerational experiences [15]. Policies and laws are necessary for regulating and prohibiting ageism in our workplaces and in healthcare. Education is vital to helping people understand and recognize ageism in our own worlds. And, finally, intergenerational mentoring is a strategy that intentionally brings together groups of different ages and creates a necessary dialog between people of different ages that does not exist in everyone's world.

Figure 1 depicts four generations of Acadians passing on the vital aspect of life for them – fishing. The Acadians are a group of people of French descent who settled in the New France colony of Acadia when they were expelled from Nova Scotia. This culture is being kept alive in the daily activities of the people. This is intergenerational mentoring to help preserve a culture. Moreover, it is easy to imagine the benefits of this type of mentoring including and not limited to teaching young generations that older adults are valuable.

In today's society, many young people grow up without the benefit of an older person in their lives. This can be due to the fact that young families find it difficult to make a living where they grew up and have decided to relocate their family. Or, the older generation has passed away. Overall, there can be any number of reasons that older adults are missing from the picture, and this can cause the dialog between the ages to be missing as well. This creates a deficiency in the understanding of the richness of benefits that can be shared between the generations. Dialog among people of different age groups is one of the things that can help clear up misunderstandings related to getting older and help build empathy for older adults.

Figure 1.
Culture preservation through intergenerational mentoring.

Recent research has shown that in young adults, gender and low levels of empathy were strong predictors of ageism. And, as a result, negative attitudes toward older adults [20]. Empathy is being able to put yourself in someone else's situation. People that do not have the capacity to put themselves in someone else's situation are more likely to have discriminatory thoughts and ideas about older adults. But, it was found that college students that have increased interactions with older adults showed less negative attitudes toward older adults [21]. These results are outstanding. They postulate that it is possible to increase empathy in young people by creating interactions between them and their older counterparts. Which, in effect, is intergenerational mentoring.

Figure 2 depicts a proud Grandfather holding his grandson. This is a natural intergenerational mentoring relationship. This little boy has been afforded the

Figure 2.
Grandparent and grandson spending time together.

opportunity to learn many things from his grandfather; thus fostering a wonderful, rich and rewarding relationship. Unfortunately, many children grow up without this opportunity. While this is sad, we can compensate for it with programs in which young people and older people are matched up to create an artificial mentoring relationship. Furthermore, Leedahl, Brasher, LoBuono, Wood and Estus, also found that intergenerational interactions between college students and older adults was able to decrease many of the negative attitudes that the younger people had toward the older ones [22].

5. Conclusions

It is very easy to see how important intergenerational mentoring can be to prevent ageism by creating avenues for dialog between the generations and increasing empathy toward older adults, but most of this information is anecdotal. There is definitely a lack of empirical evidence that supports these ideas. This gap in the literature further warrants more exploration of intergenerational mentoring and the benefits to older adults and possibly the prevention of ageism. An exhaustive search of the literature was unable to produce research studies where intergenerational mentoring brought about any negative effects. And, since empathy seems to be something that can be changed; it is highly likely that it could prevent ageism, and turn this theoretical perspective into beneficial results.

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Research Principles in Social Work for Sustainable Human in Long-Term Care for Older People

Vera Grebenc

Abstract

The well-being of older people is the main goal of research on the needs of older people in social work. To ensure the autonomy and integrity of older people in need of care, the various helping professions must develop and apply ethically sensitive methodological approaches in research and in the development and implementation of practises today and in the future. In alienated systems of care, many people lose their humanity. As social work professionals, we need to understand philosophies of care and people's daily lives from multiple perspectives. A comprehensive insight into the lives of older people is only possible if we use participatory dialog, respect people's autonomy, and understand life on the planet as inseparable from all forms of the environment. Research, as the main human strategy to understand life, is a tool to get in touch with people's everyday knowledge and inner wisdom, which are indispensable sources for creating an ecologically and socially sustainable human society. It discusses in an exploratory manner the development of the global aging and sustainable development agendas, the concepts of intergenerational solidarity and human needs, and discuss the principles of human needs research from a social work perspective.

Keywords: aging policy, intergenerational solidarity, knowledge, human needs, sustainable development

1. Introduction

With social work research, we strive to understand everyday life situations as the mission of social work is to develop the well-being of all people in pursuit of a socially just society that respects human dignity and autonomy [1, 2]. The most fundamental task of social work is to help and support people in moments of distress in their lives. As social work professionals, we are daily entering people's lives and our interventions always have an impact on people's futures. We cannot respond to any challenge without considering all the possible impacts of our intervention on people's lives. Article 9.7 of the Global Statement of Ethical Principles of Social Work states, "Decisions should always be based on empirical evidence; practice wisdom, and ethical, legal, and cultural considerations. Social workers must be prepared to be transparent about the reasons for their decisions [1]. This ethical principle burdens social workers on a professional and personal level, causing our lives to be permeated

with constant re-evaluation of our professional practice and endless self-questioning about the appropriateness of our decisions and motives. Social work, like other helping professions, is confronted with the immense human suffering in the world today. The world is in the midst of a deep and global political, environmental, and social crisis that threatens basic security conditions and is unable to meet the basic needs of its growing population [3–5]. Billions of people are struggling; hundreds of millions are at risk of hunger and even famine. People in the richest countries can expect to live up to 30 years longer than people in the poorest countries. Countries in the Global South are drowning in debt, and poverty and hunger are increasing, while they face the growing impacts of the climate crisis – a case study in inequality [5].

War conflicts, health crises, natural disasters, the violation of basic human rights, and the destruction of our planet's ecosystem are interrelated and interdependent problems. We can observe the struggle for the remaining natural and human resources. Planet Earth is "shrinking" into a "glocal village". The biophysical boundaries of the planet are being exceeded, and along with destructive human activities (imposed aggression, violence, exploitation), climate change is the most dangerous threat to the natural environment and societies [5]. In today's context of ecological and humanitarian crises, humanity faces a double task: on the one hand, to ensure absolute respect for the human rights inherent in all people, and on the other hand, to respect the planet as an indisputable value in itself. The area where sustainable development issues and global security challenges are most relevant is the issue of population aging, as this phenomenon involves a range of changes that communities around the world are dealing with differently.

The increasing aging of the population is a particular challenge in today's uncertain world. According to the World Health Organization (WHO), by 2030, one in six people in the world will be 60 years of age or older. WHO predicts that the proportion of the world's population over 60 will nearly double between 2015 and 2050, from 12–22%, and that by that time, two-thirds of those over 60 will live in low- and middle-income countries [6]. The interest of policymakers, civil society, scientists, and other relevant actors in observing and responding to the trend of population aging is not uniform but reflects different aspects. Debates on aging range from the more humanistic, cultural, and philosophical to the political, economic, health, and social, contributing to the creation of perspectives that influence society's perception of the topic and legitimize various dimensions of aging. The topic is interesting for social work from many angles: from the individual personal life course as well as from the societal level. It is important for social work to understand the micro, mezzo, and macro frameworks within which the discipline itself develops theories and practices to address the needs of older people. To better understand the role of social work and social work research in aging and long-term care in the context of global policy agendas for aging and sustainability development, the following research questions are discussed in the chapter:

1. What are the characteristics of global policy agendas on aging and sustainable development, how have these global policies evolved, and how are the needs of older people and intergenerational solidarity addressed in these documents?

2. What research principles of social work are important to create a deeper knowledge about the needs of older people and to understand the everyday experiences of older people as an opportunity for the development of an ecologically and socially just society?

The methodology used to answer the research questions is a combination of literature review, textual analysis, and interpretive discussion. The results are presented in two parts:

The first part of the paper answers the first research question and presents the results of the review[1] of global policy documents and the results of the textual analysis of global documents on the occurrence and description of older people's needs and intergenerational solidarity as themes or concepts in these documents.

The second part of the paper answers the second research question and presents a critical discussion of the findings of global policy document review, current perceptions of the needs of older people, and long-term care models in the context of social work research ethics and principles developed through practical research experience.[2]

2. Global agendas for aging and sustainable development as a policy framework for the daily lives of older people

The increasing aging of the population is considered one of the greatest global and sustainable challenges, and many questions arise about how society should adapt to this situation [3, 7–10]. A general overview of global policy attention reveals a focus on questions such as: How should society meet the needs of the growing number of older people? How can sustainable public budgets and health and social security systems be created to meet the needs of older people? How can areas of daily life, work, financial markets, education, housing, long-term care, and transportation be adapted to prevent exploitation of the natural and human worlds? How can an adequate quality of life be provided for people living today without endangering future generations?

The growth of an aging population and the environmental crisis entered the public debate as separate issues, but since the early 1970s, they have frequently appeared together in legal and policy documents and in the research literature. In particular,

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[1] Twenty-seven different documents from international organizations (e.g., UN and WHO resolutions, declarations, synthesis reports, etc.) were reviewed for their use of the concept of older people's needs and intergenerational solidarity. The documents reviewed are listed in the **Table 1**.

[2] The list of research project with author's participation:

Mali J, Grebenc V, Šabić A, Škraban J, Štrancar A. Usposabljanje za razvoj celostne oskrbe stanovalcev z demenco: končno poročilo. Ljubljana: Fakulteta za socialno delo; 2023.

Mali, J, Škraban J, Štrancar A, Grebenc V, Šabić A. Usposabljanje za razvoj celostne oskrbe stanovalcev z demenco v Domu Taber Cerklje: končno poročilo. Ljubljana: Fakulteta za socialno delo; 2023. 93 p.

Mali, J, Grebenc V, Kejžar A, Buher D, Fajković L, Koželj K, Štrancar A, Zupan M. Ocena potreb in storitev dolgotrajne oskrbe v Občini Žirovnica: končno poročilo. Ljubljana: Fakulteta za socialno delo; 2019. 104p.

Mali J, Grebenc V, Flaker V, Rafaelič, A, Filipović T, Šabić A, Peršič ML, Zaplatar T. Hitra ocena potreb in storitev dolgotrajne oskrbe v Občini Straža: končno poročilo. Ljubljana: Fakulteta za socialno delo; 2017. 80p.

Flaker V, Rafaelič A, Bezjak S, Ficko K, Grebenc V, Mali J, Ošlaj A, Ramovš J, Ratajc S, Suhadolnik I, Urek M, Žitek N. Priprava izhodišč deinstitucionalizacije v Republiki Sloveniji: končno poročilo, verzija 2.2. Ljubljana: Univerza v Ljubljani, Fakulteta za socialno delo; 2015. 164p.

Flaker V, Grebenc V, Rihter L, Rode N, Milošević-Arnold V, Videmšek P, Dajčman B, Žagar A. Oblikovanje sistema indikatorjev za ugotavljanje potreb ljudi po vrsti in količini posameznih storitev in razvoja novih oblik storitev/pomoči na področju socialnega varstva v Ljubljani: (končno poročilo). Ljubljana: Fakulteta za socialno delo; 2005. 289p.

the definition of sustainable development written in the "Brundtland Report" in 1987 [10] inevitably links the two issues: "Humanity has the ability to make development sustainable, that is, to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" [11–14]. The most commonly cited classical definition of sustainable development, which focuses on needs-based approaches and intergenerational equity, provides common ground for both agendas. It established the principle of intergenerational justice in meeting human needs as the guiding principle of sustainable development and the promotion of intergenerational solidarity as one of the objectives of aging policies. In this way, intergenerational solidarity becomes a fundamental guarantee for meeting the needs of all generations, and meeting the needs of current and future generations becomes the central theme of the politics of aging and sustainable development [10]. Thus, intergenerational solidarity, as social cohesion between generations at the societal and community levels, and especially within families, has become, on the one hand, an important principle of integrated environmental, economic, and social strategies in the development agenda, and, on the other hand, a key objective of global aging policies.

Although the sustainable development definition is strong in its value perspective, it includes two elusive concepts, intergenerational solidarity, and human needs, opening up endless possibilities for interpretation. In particular, the concept of human needs has taken a self-evident deterministic position in people's perceptions, as the satisfaction of human needs has become synonymous with well-being. Over the decades of welfare policy development, the concept of human needs has found its place in political, professional, and everyday language as a generalized concept [11–15]. It is, therefore, no exaggeration to say that meeting human needs is a stated professional goal in all social and health professions, that all policy programs identify meeting human needs as their goal, and that ordinary people would argue that meeting needs activates them in their daily lives [15, 16].

The concept of universal human needs is linked to the concept of human rights and is presented as such in the policy on aging [17–21]. The universality of needs is based on the belief that all people everywhere in the world, at all times, in the present and in the future, have certain basic needs and that these needs must be met in order to avoid serious harm to an objective nature, to participate in society, and to think critically about the conditions in which they find themselves [17–20]. The recognition of universal human needs as human rights is associated with the adoption of the Declaration of Human Rights [21]. However, it took several decades for the needs and rights of older people to be concretely addressed at the global level. The decisive moment was a "World Assembly on the Elderly" organized in 1982 in Vienna on the initiative of the United Nations (UN) [21]. The Assembly was a milestone in the creation of a global policy instrument on aging. The Vienna International Plan of Action on Aging [22] became the most important document that raised awareness of the need for special protection of the human rights of older persons and of the responsibility of states to respond to the needs of older populations. This document recognized aging as one of the most important social, economic, and demographic phenomena of modern times. It included the following areas: health and nutrition, protection of older consumers, housing and environment, family, social assistance, income security and employment, and education. Its recommendations included preventing the segregation of older people, providing home-based care for older people, rejecting stereotypical concepts in government policy, and recognizing the value of age.

The next important milestone was the adaptation of the United Nations Principles for Older Persons in 1991 [23]. By defining human principles such as independence, participation, care, self-fulfillment, and dignity of older people as their fundamental rights, this document provides a guide for understanding the well-being of older people and becomes a global document in the development of aging policy. It influenced all further international and regional documents, including the Madrid International Plan of Action on Aging (MIPAA) which was adopted at the Second World Conference on Aging, in Madrid in 2002 [24]. The three priority areas identified in Madrid were development, health and well-being, and an enabling and supportive environment. In the same year, a Regional Implementation Strategy (RIS) [25] was also adopted at the United Nations Economy Commission for Europe (UNECE) Ministerial Conference on Aging in Berlin. The strategy contains a set of concrete actions in the form of 10 commitments.[3] The MIPPA/RIS called for a change in attitudes, policies, and practices to ensure that older people are seen not just as welfare recipients but as active participants in the development process whose rights must be respected. The document, entitled "Building a Society for All Ages," therefore offered a blueprint for responding to population aging in the 21st century [24].

The tenth anniversary of the adoption of MIPAA/RIS was celebrated in Vienna in 2012 under the theme "Ensuring a society for all ages: promoting quality of life and active aging [26]. The conference adopted four priority goals: (1) promoting long working lives and maintaining working capacity; (2) promoting participation, non-discrimination, and social inclusion of older people; (3) promoting and protecting dignity, health, and independence in old age; (4) maintaining and strengthening intergenerational solidarity. Five years later, the 2017 Lisbon Ministerial Declaration on Aging, under the theme "Realizing the potential of living longer to achieve a sustainable society for all ages," reaffirmed three priority goals in slightly reverse order: (1) recognizing the potential of older people; (2) promoting longer working lives and ability to work; (3) ensuring aging with dignity [27]. In 2022, the Ministerial Conference was held in Rome under the title "A Sustainable World for All Ages." Joining Forces for Solidarity and Equal Opportunities Throughout Life" adjust the priority goals in the following order: (1). promoting active and healthy aging

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[3] The 10 Commitments of the Regional Implementation Strategy for the Madrid International Plan of Action on Aging 2002 [26]:

1. To mainstream aging in all policy fields with the aim of bringing societies and economies into harmony with demographic change to achieve a society for all ages

2. To ensure full integration and participation of older persons in society

3. To promote equitable and sustainable economic growth in response to population aging

4. To adjust social protection systems in response to demographic changes and their social and economic consequences

5. To enable labour markets to respond to the economic and social consequences of population aging

6. To promote lifelong learning and adapt the educational system in order to meet the changing economic, social and demographic conditions

7. To strive to ensure quality of life at all ages and maintain independent living including health and wellbeing

8. To mainstream a gender approach in an aging society

9. To support families that provide care for older persons and to promote intergenerational and intragenerational solidarity among their members

10. To promote the implementation and follow-up of the Regional Implementation Strategy through regional cooperation.

throughout life; (2). ensuring access to long-term care and support for family and family caregivers; (3). mainstreaming aging to advance society for all ages [7].

In the meantime, international sustainable development policies have gradually taken into account the issue of aging populations, starting with "Our Common Future" [10] and at the turn of the millennium from the 20th to the 21st century with the Millennium Development Goals in 2000 [28] and in 2015 with the adaptation of the 2030 Agenda for Sustainable Development – "Transforming our world" [29]. At the heart of the sustainable development perspective is the consideration of older people and their needs in terms of their contribution to society in order to achieve sustainable development in a balanced way [28, 29]. The 2030 Agenda calls for 'leaving no one behind' and recognizes that older people are among the most vulnerable and need special attention. It calls for the aging agenda to be mainstreamed into all policies and programs, as all segments of society should be involved in achieving the Sustainable Development Goals (SDGs)[4] [29].

From a sustainable development perspective, aging is likely to have far-reaching impacts on all sectors of society, including labor markets, financial and health systems, political participation, demand for goods and services, urban planning and infrastructure development, and family structures and intergenerational relations [30]. The implementation of the SDGs is consistent with the implementation of aging policies: in order to prepare society for the economic and social changes associated with aging and old age, the necessary conditions must be created to enable older people to lead self-determined, healthy, and productive lives and to enable them to exercise their right to make decisions and choices in all areas that affect their lives [30].

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[4] Sustainable Development Goals [29]:

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss Goal

16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Period	Global aging policy documents	Global sustainable development policy documents
1948–1999	1948 (UN) *Universal Declaration of Human Rights* 1982 (WHO) *World Assembly on the Elderly* 1991 (UN) *The United Nations Principles for Older Persons Resolution*	1987 (WCED). *Our Common Future: Brundtland Report*
2000–2014	2002 (WHO) *Active aging; a policy framework* 2002 (UN) *Madrid International Plan of Action on Aging; Report of the Second World Assembly on Aging* 2002 (UNECE) *Berlin Ministerial Declaration: A society for all ages in the UNECE region* 2002 (UNECE) *Regional Implementation Strategy for the Madrid international plan of action on aging* 2007 (UNECE) *León Ministerial Declaration: A society for all ages: challenges and opportunities 2007 (UNECE) Implementation of the Madrid International Plan of Action on Aging in the UNECE region: Review of the first 5 years* 2012 (UNECE) *Vienna Ministerial Declaration: Ensuring a society for all ages: Promoting quality of life and active aging* 2012 (UNECE) *Second Review and Appraisal of the Regional Implementation Strategy of the Madrid Plan of Action on Aging (MIPAA/RIS): Synthesis Report on the implementation of the Madrid International Plan of Action on Aging in the UNECE Region*	2000 (UN) *United Nations Millennium Declaration: Millennium Development Goals*
2015–2030	2017 (WHO) *Global strategy and action plan on aging and health* 2017 (UNECE). *Lisbon Ministerial Declaration: A Sustainable Society for All Ages: Realizing the potential of living longer: Ensuring a society for all ages: Promoting quality of life and active aging; 2017 (UNECE). Synthesis Report on the implementation of the Madrid International Plan of Action on Aging in the ECE region between 2012 and 2017* 2017 (UNDP). *Aging, Older Persons and the 2030 Agenda for Sustainable Development* 2017 (UNFPA). *Aging in the Twenty-First Century: A Celebration and A Challenge* 2019 (WHO) *Global campaign to combat ageism* 2020 (WHO) *Decade of healthy aging: baseline report* 2022 (WHO) *Aging and Health* 2022 (UN) *Rome Ministerial Declaration: A Sustainable World for All Ages: Joining Forces for Solidarity and Equal Opportunities Throughout Life;* 2022 (UNECE): *Aging Policy in Europe, North America, and Central Asia in 2017–2022: Synthesis Report on the implementation of the Madrid International Plan of Action on Aging in the ECE region between 2017 and 2022* 2022: (UN) *MIPAA/RIS + 20 20 years of action toward creating societies for all ages in the UNECE region*	2015 (UN) *Transforming our world: the 2030 Agenda for Sustainable Development* 2021 (UN) *Our Common Agenda – Report of the Secretary-General* 2023 (UN) *Global Sustainable Development Report 2023, Advance, United version*

Table 1.
The chronology of WHO and UN aging and sustainable development policy documents adoption.

2.1 The political narrative on aging and intergenerational solidarity

The concept of intergenerational solidarity links the issues of sustainability and aging, particularly in the area of the social and economic impact of population aging on sustainable development, in order to protect the rights and needs of future generations while meeting the needs of today's older people. Intergenerational solidarity is directly related to society's current attempt to act and develop under the paradigm of sustainability. Sustainability itself has a moral core that relates to equity and points to the intergenerational obligation of today's people to "strive for development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [10].

At the turn of the millennium, younger and older generations had reciprocal relationships in aging policy documents, both responsible for caring for each other, e.g., the opening paragraph of the 2002 Madrid Report of the Second World Assembly on Aging states, "We recognize the need to strengthen intergenerational solidarity and partnerships, taking into account the special needs of both older and younger people, and to promote intergenerational relationships based on reciprocity" [24].

The rhetoric in sustainable development documents is less conciliatory toward current generations, emphasizing the rights of unborn generations under the threat of "profligacy "by living generations that are "rapidly closing options for future generations". In particular, there is a frustration on the side of sustainable development and environmental protection that has persisted since 1987 when the World Commission on Environment and Development determined that drastic action was needed [31]. Current sustainability documents emphasize that there is no sign of major improvements and that the world must think about future generations who, by definition, are not represented in today's decision-making and cannot articulate their needs [31].

From the perspective of old-age policy, it is interesting to note how intergenerational solidarity has become an important policy objective over the decades. For example, analysis of the MIPAA/RIS synthesis reports shows how intergenerational solidarity became a focus of aging policy and a goal in itself. In the first two implementation cycles (2002–2012), intergenerational solidarity activities can be found mainly in the areas of activities against age discrimination, promoting the integration of older people into society, and supporting families in caring for older people [26, 31]. Especially in 2007–2012, during the global financial and economic crisis, the issue of intergenerational solidarity was mainly addressed in the areas of social security system transformation, health care improvement, mainstreaming of aging, and labor market adjustment [32–34].

Older generations were seen at the time as an economically strong cohort that could contribute to economic growth after the years of the global financial crisis. Intensive policy efforts were made at the time to refute the notion that older people were a burden on society: "As Europeans live longer and healthier lives, governments are looking for ways to increase older people's involvement in society and keep them active; these changes could lead to economic benefits for society as a whole" [29]. For example, the United Nations Population Fund (UNFPA) report states, "Our collective future is one in which there will be more older people than children [...] Political will is needed to ensure that aging is a time of opportunity for all" [35]. In the last decade (2012–2022), intergenerational solidarity has been established as a specific goal of aging policy and has become the focus of action plans [3, 4, 7, 8, 34, 36].

In the political rhetoric of aging, intergenerational solidarity has recently been more closely linked to the sustainable development agenda, and current generations

are expected to protect natural and economic conditions for future generations. It is recognized that older people can participate in society not only financially, but also through their voluntary contribution to caring for younger generations or through other forms of active participation in all areas of life (e.g., culture, education, family care, etc.). The intergenerational solidarity as an influential principle had an important impact on economic development and the development of alternatives in the field of welfare and health care. The importance of intergenerational solidarity is particularly seen in the area of financially sustainable social protection and welfare systems, active engagement of older people in society, promotion of healthy aging and independent living, and promotion of a positive image of aging. The last MIPPA/RIS decade has promoted deinstitutionalization and 'aging in place' (various forms, such as intergenerational or assisted living), as well as the use of technology and digitization as a means for older people to live independently in the community [7].

2.1.1 Shift from active aging toward healthy aging policy agenda

Currently, the most important document in the field of aging policy is the Decade of Healthy Aging (2021–2030)[5] [9]. The Decade of Healthy Aging is in line with all major global documents on aging and sustainable development. Healthy aging is defined as "the process of developing and maintaining the functional capabilities that enable well-being in older age" [9], This document introduces the " policy agenda of 'healthy aging' as a new conceptual model in the field of aging policy. 'Healthy aging' replaces the World Health Organization's previous focus on 'active aging,' a policy framework developed in 2002 [19]. The concept of active aging was primarily about expecting physically active older people to participate not only in working life but also in social, economic, cultural, spiritual, and civic affairs. Like active aging, healthy aging emphasizes the expectation that older people remain a resource for their families, communities, and the economy, but now the focus is on older people's abilities to meet their basic needs in order to realize their visions of living with dignity [9].

The capabilities model used in the current aging policy combines three components of healthy aging: the intrinsic capabilities of the individual, the environment in which a person lives, and the way people interact with their environment [9]. This concept of aging introduces a functioning-based approach to aging policy. The functioning-based approach, as the most basic ability of older people to manage and meet their immediate and future needs, determines their ability to provide an adequate standard of living. This ability includes ensuring that older people can afford adequate food, clothing, suitable housing, and health and care services. The concept of healthy aging focuses on the ability of older people to meet their basic needs and assumes that older people have the desire to contribute to society and are willing to achieve their personal goals for well-being. Functioning is understood as the set of capabilities that enable all people to be and do what they rightly value. Because people's abilities change over the life course, the capabilities approach focuses on the abilities of older people to minimize the impact of changes that may be associated with illness, disability, loss of financial or social networks, or livelihood.

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[5] The UN Decade of Healthy Aging (2021–2030) [9] is based on the Global strategy and action plan on aging and health (2016–2030) [17] and aligned with Transforming our world- the 2030 Agenda for Sustainable Development [30], and key global commitments set by Madrid International Plan of Action on Aging [24]. It follows also other closely related strategies and plans endorsed by the World Health Assembly and the United Nations General Assembly related to population aging.

2.1.2 Normative and economistic view of older people needs

Analysis of selected documents reveals a trend of customization of goals from one implementation cycle to the next, following changes in the global socioeconomic situation (e.g., the world has gone through a deep financial and health crisis and faces global security, political, and environmental crises) and instrumentalizing global policy documents for adaptation in regional and national policies. The needs of older people are placed in the context of broader and mostly pragmatic issues, such as the sustainability of social security systems, the challenges of an aging workforce and a declining number of working-age people, higher demand for health and social care services, and long-term care, and thus the need for more trained health and social care professionals. All of these issues have become common topics of public and private discussion in more than 50 years of global aging policies and sustainable development, and as such have influenced the rhetoric of human needs and intergenerational solidarity. Older people have an image as a consumer cohort that is both attractive to the care industry and a constant threat to future generations due to their growing needs.

Human needs are argued in the global policy agenda as an ethical imperative based on human rights. This policy advocates the model of universal human needs and that there is a collective responsibility for the optimal use of natural and human resources to meet human needs. Human needs are addressed in the Decade of Healthy Aging through a capability approach. The capability approach understands human well-being in terms of essential freedoms and opportunities that people possess [13]. The freedom to achieve well-being is a matter of what people can do and be and thus creates a moral framework for assessing whether a person has certain competencies and whether there are opportunities in their environment to live well [18]. However, the rhetoric of universal human needs in this policy overlaps with economic and moral rhetoric. The current politics of aging implies an exclusively economistic view of human need satisfaction, as the "subject" should tend to be self-sufficient in meeting his or her needs through participation in the economy and the free market.

The capacity approach to human functioning is based on the assumption that people will do whatever it takes to fulfill their identity project and does not allow for critical reflection on the consumerist nature of contemporary identity formation. Consequently, the function-based approach neglects the limits of sustainability by failing to provide much-needed critical reflection on non-finite consumption, and by providing little space for reflection on preferred choices for satisfying needs. Using the capability model as a counterpart to the deficit model, an aging policy cannot move beyond "repeating the same". Although the ability concept advocates autonomy and the freedom of individuals to make their own decisions about their lives, it establishes a normative logic of standardized abilities that a person must have in order to be recognized as capable of participating successfully in society.

2.1.3 Politicization of intergenerational responsibility

Healthy aging as a political concept is an economic and moral justification for enacting policies and seeking programs to promote how to age well. By avoiding harmful behaviors, people demonstrate their commitment to taking responsibility for their own health and the health of others. The concept of healthy aging places the responsibility on people to strive to make healthy choices throughout their lives and,

if they are in good health, helps to reduce the cost of health care in old age [37, 38]. The older generation is portrayed as a large group that can be a strong economic force in society: "The available evidence suggests that caring for older people is not as costly to finance and that older people, especially when healthy and active, provide significant economic and societal benefits, e.g., through direct participation in the formal and informal labour force, through taxes and consumption, social security contributions, through transfers of money and assets to younger generations, volunteering, etc. [18]. Key issues in the development of long-term care are therefore accompanied by an emphasis on opportunities for the economy. 'Opportunity' is a magic word used in the politics of aging and sustainability.

Intergenerational solidarity is a cultural and religious value that has been present in the relationships between family and community members since the existence of humanity. It is a basic requirement for communities to survive at all. The analysis of the main international documents on aging and sustainable development shows the politicization of the principle of intergenerational solidarity. In international strategies and action plans, it has become an alienated political goal over the last 50 years. For example, the documents analyzed report the exclusion and vulnerability of older people during the COVID-19 pandemic, although intergenerational solidarity is a catchword in policy documents. Declared goals are not a guarantee of their implementation. However, on the sustainable development side of global politics, the search for a response to implement intergenerational solidarity as a sentiment and value of humanity is evident: "A new global contract to provide global public goods and address major risks" is needed: "A renewed social contract at the national level and greater intergenerational solidarity must find expression in a new contract at the global level" [31].

The political rhetoric of international declarations is based on the principle of intergenerational justice – the recognition of responsibility toward future generations. Under phrases such as "ensuring a society for all ages", "a sustainable world for all ages," or "our common future", "leaving no one behind," or "transforming our future," features of shared responsibility and a moral duty of all people can be discerned. At the same time, however, the strategies and goals in these documents reveal a continued individualization of health or social risks and a moral panic about older people who might not benefit society in old age because of their economic or health impairments. The politics of aging and sustainable development are inherently contradictory because there is an expectation of a more modest life while at the same time, there is constant pressure on people to participate in the economic race. The moral appeal to all people of all generations is presented as an individual "debt" to future generations, with no thought given to how consumer culture is sustained in a forced global market economy.

3. Principles of social work research to deepen knowledge of understanding the needs of older people

Political statements about older people have a strong influence on the perception of older people in society. The dominant discourses of science, if they do not critically engage with their own production of knowledge, might also remain trapped in the dominant forms of objectifying knowledge and political ideologies [39–43]. Social work research faces the challenge of creating critical reference

points to taken-for-granted constructions of reality and deciphering given meanings. Generalized political discourse is an interpretatively narrow and regulated language [40, 42]. Objectifying reality in a generalized, universalistic, and technical political language facilitates an easy adaptation into mainstream public narratives. Indeed, global political documents exhibit all the attributes of metanarratives that create a comprehensive and universal truth as a grand theory [39, 41]. This kind of political language creeps into everyday language and triggers a "looping effect" of self-referential descriptions of reality [42]. Generalized language in global policy documents influences not only the attitudes and opinions of ordinary people but also the discourses of academia and experts [41]. Expert texts tend to translate lived human experience into a linguistic form acceptable to relations of domination [44]. The production of knowledge is always a political act and a manifestation of a privileged position in society. The words of the dominant narrative have immense power in people's lives and 'leave their mark everywhere' [39, 41]. Influencing the interpretation of reality is indeed the most powerful position in society.

Critical theories in social work point to the problem of traditional 'universal truth' [45, 46]. There are 'voices that are traditionally silenced' [45–47]. Correcting deficient forms of interpretation can only be done by recognizing people's particular knowledge and using language that is sensitive to lived experience [44, 47, 48]. The lack of interpretive schemes is not only related to taboo subjects (not talked about out loud) but part of the silence is related to maintaining the status quo in a society [47, 49–51]. For example, the political metarhetoric of integrating older people into society by emphasizing happy and healthy aging silences the voices of the less happy and less affluent older people as 'social problems'.

Social work as a value-based profession derives entirely from the principles of human rights and the improvement of social well-being and quality of life for all people [48, 49, 51]. The global definition of social work explains in detail the mission of social work, "Social work is a practise-based profession and an academic discipline that promotes social change and development, social cohesion, and human empowerment and liberation. The principles of social justice, human rights, collective responsibility, and respect for diversity are central to social work. Drawing on theories of social work, social sciences, humanities, and indigenous knowledge, social work engages people and structures to address life's challenges and improve well-being" [2].

The definition of social work promotes a holistic person-in-environment approach to social work, and in order to accomplish the complex task, social workers must grasp people's real-life situations from all possible angles [44, 51, 52]. Social work research is an inevitable part and the first step in the social work mission for improving the well-being of people. Therefore, the premise of social work research is that social work, as theory and practise, must explore the specifics of people's everyday lives and incorporate the findings into social work interventions (transform the findings into knowledge for "doing"). The challenge for social work is to take up this premise and create the conditions for research-opportunities, methods, knowledge, and expertise-that enable, first, dialog with people and, second, ongoing reflexive dialog between social work theory and practice as both provide a conceptual framework for understanding people's realities. In conducting research and planning interventions, therefore, social workers face the practical challenge of how to create opportunities for dialog with people and how to learn as much as possible about people's everyday lives in order to authentically capture their conceptions of their reality.

3.1 Principle 1 of social work research: critical perspective on scientific and political generalizations

Political narratives in global documents create an influential framework for a simplified generalization of reality. Images of people and definitions of needs will always contain the assumptions that researchers and experts make about people and realities. The anthropological and ethnographic research tradition warns us of the pitfalls of creating colonizing knowledge [16, 53, 54]. The pitfalls of patronizing objectification of reality into which researchers concerned with the needs of older people and planners of social welfare interventions can easily fall are precisely those of selectivity and generalization [37, 44, 55]. Analyzing and collating information inevitably leads to generalization, selection, and grouping of information, while the demands of the feasibility of ideas and the pragmatics of human life lead to the reduction of people's expectations, desires, and needs. If we ignore narrative and language, which is a powerful transmitter of cultural and social patterns, we can quickly get caught up in stereotypes when exploring needs and, in fact, help to perpetuate simplistic, stereotypical ideas about people's everyday lives [56].

In the 21st century, criticism of prevailing social, political, or moral discourses is no longer enough. In social science research, and especially in social work research, there is a long tradition of radical and transformative research practice and knowledge [44, 49, 51, 57–59]. The intention for research to move beyond tokenistic, self-referential scholarship is evident in various research activities (action research, citizen science, participatory user research, ethnographic research, etc.) in which researchers have been intensively involved in community and institutional transformation processes [44, 49, 51, 60–65].

When researching the lives of older people and their needs from a social work perspective, we must be aware of the importance of research procedures in creating emancipatory knowledge about life. As holders of privileged knowledge in contemporary society, professionals have a great responsibility to critically evaluate their own knowledge [53]. The self-sufficiency of expert knowledge and the self-confidence of professionals in their own "omniscience" are today the greatest obstacles to creating a dialog with people. In this respect, social work, which is in direct contact with people every day, is a discipline that should take advantage of this possibility of infinite dialog with people to constantly reflect on the knowledge of life [43, 44, 53]. Complementarity of knowledge is only possible when we express different experiences and perspectives. By exploring particular life experiences, exploring individual survival strategies, comparing different life contexts, and testing alternatives, we discovered not only individual particular life strategies but also situations of collective activation in developing responses [44, 49, 51, 60–65].

Social work research is therefore always complex and involves multiple knowledge holders (people from the community, professionals, service users, and other knowledgeable people). Multiple perspectives and interpretations of interrelated situations help find the "blind spots" and identify the ideologies that underlie different bodies of knowledge. In this way, we can systematically and continuously correct social work theories and practices. Research, then, is always a critical look at the established cultural and civilizational forms of a society [16, 38, 43, 44]. By "dissecting" the features of people's everyday lives, we also "dissect" the self-evident and invisible social forms. It is therefore not irrelevant who studies everyday life and how, and on the basis of which theoretical and value-related assumptions they make statements about life [16, 43, 44, 53, 63].

Exploring needs from a critical social work perspective is therefore always an exploration of traditions of thought and systems of constructing and justifying knowledge about the world. Adding to or correcting the stereotypical political and scientific narrative of people in need of care can only be done through an analysis of the language and constructions of one's experience [44, 49]. Exploring needs requires looking beyond the 'similarly sad or similarly successful story' as well as beyond the 'binding identity project" [37]. Improved interpretive schemes for explaining the world (new ideas and language) can only emerge in dialogic encounters with the "other" and otherness (helping us to see our invisible selves) and in the dialectical process of shaping personal theories and practices of everyday life [37, 43, 62]. Social work research is therefore constantly searching for unknown to correct conclusions about reality in order to correct and improve limited or inadequate interpretive schemes.

3.2 Principle 2 of social work research: transformation of mechanistic models of long-term care

Policy documents have a strong influence on the perception of what should be under the radar of science and the professions. For example, the concept of healthy aging and the associated capability model create a specific perspective on the needs of older people and the ideas of long-term care that should meet those needs. Today, we can state that long-term care for older people is a complex system of activities and services for people in institutions or in the community [48, 49, 51, 52, 60]. The complex organization in systems of care is trapped in the people processing management. The long-term care industry, organized on the model of sequential care on an assembly line, with different caregivers providing fragments of care, uses categorization tools as input information for organizing work [44, 55]. The tendency to develop mechanistic tools for managing people is therefore pervasive, as care providers and care institutions must adapt to the rules of the corporate business. In an effort to simplify management, capability information, as basic deficit information, introduces the immediate and causal logic of imposed or assumed needs. The procedural model of work does not go beyond an alienated form of care. Assistance is not about dialogically co-creating responses in the context of people's lives, but about finding arguments about how to adapt a person's situation to the system of care. Standardized needs are not something personal, inherent in the individual as part of their life experience, but become part of the imposed reality enforced by the service system and standard forms of assistance [44].

Therefore, the assessment of abilities in their selected categories can be very reductionist. Measuring people's abilities can be a moment of depersonalization of human life. Together with the selection of indicators of basic needs, this can be a moment of total reduction of human existence to a few measurable categories (e.g., the ability to dress, take medication, and handle money) [9]. There is an illusion of 'objectivity' in the ability to measure because all measurement instruments are arbitrarily determined. By using standardized assessment tools, professionals attempt to create the impression of equality in decision-making processes about people's social and health rights [44]. However, the models used to assess people's abilities are selective and arbitrary, depending on who sets the criteria and what the model measures. Psychophysical ability assessment scales are an example. Although these assessment scales (e.g., disease progression scales, physical mobility assessment) are practical, transparent, and provide a relatively quick indication of a person's basic

psychophysical abilities, they are generally an "ability set" that does not contribute to an understanding of personal needs or support operationalization of need satisfaction [44].

In everyday professional practice, there are many examples of attribution of needs where professionals do not recognize people's needs but argue that users need a particular service. Example: When someone is homeless, professionals conclude that they need to be placed in a group home (perhaps they need their own place to live in the first place); when a person with dementia loses orientation to the environment, the conclusion is that they need to be placed in a safe facility (perhaps they just need companionship to go for a walk); when an older woman experiences violence, the conclusion is that she needs to be placed in a safe house (in reality, she may want the perpetrator of violence to stop harassing her) [44]. In the person-processing logic of work, causal logic and standardized offers trigger a scenario in which "an older person with a chronic illness needs to be placed in a nursing home," "the dementia patient needs a day centre," "people living alone need volunteers"," "a person who cannot prepare her own meals needs a home delivery service," "the unemployed person needs a course on how to write a job application," and so on. If one understands needs as purely administrative categories, one quickly falls into a cause-and-effect logic, similar to the way diagnoses are made in medicine. Needs are a "disease" to be diagnosed and services are a "prescription" If we as professionals focus only on the services we can provide, the actual circumstances of need and sources of power (capabilities) become irrelevant. A person in the role of 'user/client' is in a take-it-or-leave-it situation" [39, 44, 55].

Understanding needs must overcome the simplistic causal logic. However, people do not want to question the taken-for-granted, 'natural obviousness' of everyday life [66]. Human beings physical appearance in the world and awareness of physical vulnerability and transience of human being life bring feelings of uncertainty and unpredictability to our existence. Truths and ideas about the world help us make sense of existence and support the belief that all is well with life [66–68]. There is a link between routines and understanding needs. Many needs relate to daily rhythms and activities, but also to the predictability of the future. A sudden disruption in the familiar scenario causes people to find ways to restore the previous routine (needs expressed as repair tactics) or to adapt to a new situation (needs expressed as adaptation tactics) [69]. These behaviors are adapted to daily rhythms that are part of the daily routine (e.g., taking care of hygiene, preparing a meal, contacting relatives, visiting friends, etc.), as well as to life rhythms associated with turning points in life (e.g., moving to an institution, retirement, death of a partner, moving to another town, serious illness, etc.).

From a purely practical perspective of daily routines and activities, needs can be identified as anchor points for creating plans to operationalize strategies for daily living [44, 48–52]. Images of human needs, in their basic nature and universality, provide a sense of a shared world and support individual feelings of ontological security [66]. One could say that in the modern era, the concept of human needs has provided codified knowledge about daily life [44]. Therefore, we constantly create more or less reliable and credible conceptions of the world as we try to understand ourselves and the world in which we live [66, 69]. Social work research should incorporate sensitivity to the unique life of every person. Older people want a tranquil life and not a constant intrusion into their everyday life. They want to be cared for and nurtured in a home environment; under the conditions they find meaningful for them. Most of their needs can be grouped around three axes: the activity axis (activities of daily

living), the integration axis (connectedness with other people, relationships, sociability, and contacts), and the social power axis, which is about society's attitude toward older people and its influence on planning their future [44]. These three axes are crucial for the creation of long-term care focused on the overall security not only of old people but also of younger generations (because the experience of security is an individual balance of health, respect, satisfactory material conditions, and decision-making opportunities) [44].

The advantage of social work research oriented to personal everyday scenarios and contexts is that it offers the opportunity to understand that people have very different ideas about what they need, how urgently they need something, and to what extent. By talking about people's lives, researchers learn more about people's personal desires, what is important to them, and what the important goals are in their lives [44, 45, 48–52]. Therefore, in order to understand the needs of older people, the needs of other generations must also be explored and understood, because intergenerational solidarity is about the values of all people - what people want for themselves and for those around them, what they value, and what they consider important in life. Forcing institutionalized solutions to people's everyday needs creates discomfort, paralyzes people's resilience, and disempowers them to develop their own capacities [44].

3.3 Principle 3 of social work research: the exploration of needs as a moment of profound reflection of reality

Human existence is embedded in an ever-changing reality to which individuals seek to adapt or change. We must understand needs as part of this ever-changing reality. People today are confronted with two definitive facts: First, unlimited satisfaction of human needs is not possible on a finite planet, and second, intergenerational ethics have reinforced the realization that the effects of our ecological actions today will negatively impact those who come after us [70]. As awareness of the devastating effects of human exploitation of the planet's resources emerged, the concept of human needs became the subject of critical and reflective discussion [71]. The interaction between planetary boundaries and human well-being is seen as an important framework for shaping sustainable socioeconomic and other policies [71, 72]. Human well-being and planetary well-being become dual and inseparable goals for any human activity. The anthropocentric vision of social justice is reflected in the demands for environmental justice to preserve the planet [14, 71–73]. Understanding basic human needs within planetary boundaries means that creating a safe, fair, and equitable space for humanity requires greater global equity in the transfer of natural resources to meet human needs and absolute efficiency to return to planetary boundaries [71, 73].

Exploring needs is a moment of critical reflection on everyday life scenarios and as such can become transformative in the process of developing alternative solutions for practical (and ecological) change [43]. Ecological awareness of the urgent task of changing our habits confronts us with the task of overcoming entrenched ideas about our perception of needs and rethinking our value systems. Exploring human needs is an act that directly clashes with our established patterns of behavior [16]. It is the issue of the perception of human needs that confronts us with the inner tendency of humans to control and influence the future in order to suppress feelings of insecurity [66, 67]. But life on earth and the future as such remain unpredictable, despite our constant efforts to create knowledge to control and direct all aspects of life [66–68].

The future is "available" only at the level of assumptions. The profound discrepancy between perceptions of ecological and social needs confronts the human sciences and helps practice with the ethical demand and inescapable task of moving beyond ecologically blind studies of the social world and human needs. It is not possible to discuss the social dimensions of well-being without considering ecological issues. Climate change and other environmental issues remind us that human well-being depends on the well-being of the entire planet. Like all helping professions, social work is at a crossroads to rethink its ethical human rights foundations and professional mandate. The ethical and moral question is how professional knowledge can contribute to a socially and environmentally just society [72, 74].

Exploring and discussing people's needs is a powerful force that encourages people to think about their lives. By exploring needs, we are constantly questioning the seemingly obvious and taken for granted, reflecting and articulating everyday routines [60, 69]. Talking about people's everyday lives and their personal stories is always a moment of reflection of the world in which we live [66, 68]. The question about needs stimulates thinking about the future. People think about needs in terms of situations in the present, but they connect the ideas to the future. The concept of risk has an important influence on the question of needs. Risk refers to future events where it is not certain what will happen in the future [67]. People rely on experience, knowledge, and available resources to manage risk and hope that the desired scenario will occur. Needs thus become part of the scenario plan (they are an idea of what they need to achieve the desired outcome). As such, needs have the property of having a response and a path to the response. Exploring the situation of older people, which includes a contextual consideration (e.g., characteristics of place, time, social network, etc.), allows the practical ideas to be integrated into an operationalized plan (as a path to a desired outcome) [44, 45, 48–52]. When assessing needs by how certain it is that people's expectations will be met, understanding the context makes it easier to imagine how events (situations that follow in response to needs) might occur.

Social work research aims to identify people's individual, intimate plans regarding their desires for need satisfaction. In an ideal research situation, it would therefore be necessary to include action elements and testing of solutions (proposals and ideas) in any social work research [44, 45, 48–53, 75]. In this case, it always turns out that solutions are never final, because only when we test the solution or idea can gaps in the plan be discovered and the plan be revised (or the idea can be reversed based on new understanding) [44, 48–52]. By exploring and recording everyday life and the needs articulated in it, we become attentive to the question of what knowledge individuals and communities have created as meaningful [43, 49, 56]. Therefore, sharing visions of needs can also be understood as a dynamic force for connecting communities and building social fabric [61].

3.4 Principle 4 of social work research: understanding needs as a changing concept

Science usually creates objectified factual knowledge. The challenging task of changing a limited anthropocentric and colonizing view of human needs so that it becomes more relevant in the context of a socially and ecologically just society is a demanding one and involves the reconstruction of scientific knowledge creation. The guiding principle of social work research for the possibility of creating transformative knowledge and values is rooted in human wisdom. There is a constant dialog and dialectic that takes place in people's everyday lives and is reflected in the

development of intimate knowledge formation. We can say that when we theorize about everyday life, we select and observe certain situations, attribute certain features to them, identify certain relationships between those features, and then see if the thing as we understand it stands up to comparison with other theories of everyday life, works in practice, and helps us achieve or understand what we want to achieve or understand [59].

When the political agenda gives preference to certain solutions, it sets the normative framework for interpreting reality and underscores the perception of needs. However, like any small or large personal theory about life, people develop their own personal theories about needs. Social work research can identify both how curtain concepts creep into everyday knowledge and how certain people's values and beliefs live beyond popular and dominant concepts of life. Social work needs research, then, is first and foremost hermeneutic research because it is concerned with interpretation in knowledge formation. Secondly, social work research follows the heuristic approach in research design, as it is based on dialog as a specific form of dialectic that reflects and contradicts stereotypical public, scientific, and political beliefs.

We can conclude that social work research works under the paradigm of maximum structural variation of perspectives, while its analysis is focused on the discovery of similarities and differences in their temporal validity, as long as new and better explanations are created [76]. The complex exploration of the everyday world of older people leads to explanations of the contexts, and the circumstances in which their needs arise. It can help to gain insights into the specifics of different people's lives and their environments [44, 48–52]. Social work research connects the different actors in shaping the idea of a common future based on concrete life situations [44, 45, 75]. The ideal outcome of a dialogical study of needs is an agreement negotiated between different actors in the community (residents, professionals, local policy representatives, the public, etc.) on the design of responses to the assumed needs. Therefore, the study of the needs of older people and the development of solutions to their needs is a strategy for creating knowledge about the characteristics of a particular place and time.

Exploring the needs of older people is a search for a delicate balance between individual freedom and respect for others, between autonomy and connectedness [44, 48–52]. "Thus, solving problems in the domain of wisdom requires more than the domain-relevant knowledge identified in research on other types of expertise; it requires qualities unique to the domain of wisdom. In addition to factual and procedural knowledge (heuristics) about the human condition and how to live a good life, competence in the domain of wisdom requires, in particular, consideration of context, tolerance of differing values, and the ability to deal with uncertainty" [77]. The satisfaction of needs is a creative act of human beings. It is a dialectic that takes place between experience, the interpretation of experience, and a new idea. The possibility of forming one's own opinion is the basis for individual freedom and the meaning of life. In this way, social work research directly implements the goal of the Global Strategy on Aging: "The strategy aims to foster the ability of older people themselves to invent the future in ways that we and previous generations might never have imagined" [18].

Lived human experience teaches us that wisdom comes from gaining deep insights into oneself and one's life based on procedural knowledge (strategies and heuristics for dealing with life and its meaning and for making life choices), contextualism across the lifespan (knowledge of the many contexts of life), consideration of value

relativism (recognition of and tolerance for different values held by other people and other societies), and tolerance of ambiguity: the ability to recognize and cope with the uncertainties in one's life that arise from uncertainty [75–80]. Therefore, social work is always in search of understanding an ever-changing context of reality and striving for the necessary stability in people's lives. Social work research is a never-ending story.

4. Conclusions

The world today has to cope with humanitarian and environmental problems. Social work research can help to discover the creative inner wisdom of people, as we need transformative ideas for sustainable and humane solutions. Global political agendas determine the priorities of research topics and shape the dominant narratives. A careful look at the international documents studied showed us the content and areas of interest pursued by different global and regional actors. Although terminology and rhetoric have changed slightly and priorities shift, the focus of aging policy has remained the same over the past 50 years: Recognition of the potential of older people (the potential of longevity for the economy and society), health promotion (functioning-based approaches in maintaining the ability of older people), and long-term care (sustainable and equitable systems of care for older people with significant declines in the physical and mental capacity that limit their ability to care for themselves and participate in society).

Current global aging policies are based on the healthy aging agenda, which justifies economic and moral reasons for promoting quality of life in old age by maintaining good health throughout the life course. In conjunction with the concept of intergenerational solidarity, the guarantee of meeting the needs of all generations lies in the reciprocity between the younger and older generations. Universal human needs and human rights are presented almost as synonyms in global policy documents, so we should not confuse the universality of human rights with the idea of universal needs. While human rights are considered universal by definition - they apply equally to all human beings - the universality of human needs should be understood as an interconnected and interactive system of basic human needs that are satisfied in an infinite and insatiable context of life.

The healthy aging agenda's concept of capability advocates for the autonomy and freedom of individuals to make their own decisions about their lives, creating a normative logic of standardized capabilities that a person must have in order to be recognized as capable of participating successfully in society. It is important for helping professions to be alert to alienating, people-processing practices in long-term care systems, as the organization of work, and categorization of people can lead to mechanistic work with people. Social work as theory and practice is critical of generalized conceptions of older people and promotes those research strategies that allow for the discovery of the diversity of life experiences and the correction of different kinds of knowledge (especially hidden, ignored knowledge).

The experience of exclusion is the experience of invisibility. In today's society, older people are marginalized unless they have economic power, but within this group, older women, people with dementia, and poor older people are even more marginalized. By exploring the everyday lives of older people and understanding their needs beyond socially dictated identities, we create narratives and a language that provides the opportunity to address experiences and issues that are otherwise outside

of mainstream lifestyles. The hidden, the unspoken, are not only illness, death, and loneliness, but also the experience of systematic neglect and abuse, and depersonalization, especially among people living in institutions.

The overarching idea of social work theory and practice is a socially and environmentally just society. Starting from the anti-oppressive and radical scholars of social work, there is a social work knowledge and experience of critical research. Thus, social work research is not only about collecting data and interpreting information but also about finding concrete and useful practical solutions for people. In its pragmatic objective, social work should always benefit people. It can be said that needs have assumed a representative and symbolic function in the interpretation of what should be fulfilled in the life of each person. In a generalized and stereotyped way, human needs have become ideas that people exchange among themselves to explain the characteristics of individual and collective life situations. Survival itself requires a constant process of articulating the experience of reality between people, and by describing needs we can create a universal system of exchanging practical and concrete information. Needs as schemas, codes, symbols, and concepts are there to explain to each other what we need in life to live at all, and what we aspire to in order to feel fulfilled. Identifying and naming needs is how we co-create the truths of reality and agree to represent our position in this world. Or, to put it another way, needs have their place in daily life as common markers of reality, and as ideas, they help us generalize the basic human experience of being.

All people need a basic sense of security to make their lives predictable and manageable. An empowering social work research is that which allows people to develop their own theories of life, their personal models of knowing how the world works, and how to make sense of life. Freedom comes from the personal inner power of judgment [81]. The ability to independently decide what is good for us and the ability to make choices are linked to an autonomous sense of knowing what we need and want. Thus, each of us spends a lifetime developing and testing our own theories about the world and ourselves. We cannot escape this theorizing because life experience forces us to constantly adapt to life's challenges. Social science, and social work science in particular, has a unique opportunity to open up to the excluded, ignored, and neglected experiences of human existence. Older people are the ones who can contribute to providing the necessary reference points for reflecting on reality since their world has changed several times during their own lives.

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Conflict of interest

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Intergenerational Relations - Contemporary Theories, Studies, and Policies, concentrates on actual discussions around various aspects of interactions that occur between people from different age groups and generations. The authors present studies related to four sets of challenges crucial for relationships between children, young adults, middle-aged adults, and older adults. These challenges include social and cultural challenges, economic and technological challenges, environmental challenges, and political and legal challenges. The volume also addresses issues important for the global, national, regional, and local application and performance of intergenerational solutions, projects, and programs focused on achieving the United Nations Sustainable Development Goals (SDGs). The collection includes chapters encompassing research and practical recommendations from various disciplines such as demography, economics, ethics, management, gerontology, public health, pedagogy, social work, political science, and sociology. This book is an asset to academic and professional communities interested in theories of intergenerational relationships as well as public services and age-related policies. Moreover, the volume is a useful resource to help students, practitioners, and people working in government, business, and nonprofit organizations build positive and harmonious interactions between generations.

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