

Original Research Report



Nutritional Knowledge and Cultural Food Beliefs on Dietary Practices of Pregnant Women

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Abstract: The paper assessed the nutritional knowledge and cultural food beliefs on dietary practices of pregnant women in Epe Local Government Area, Lagos State, Nigeria. A descriptive research design was adopted for this study. The population of the study consisted of all registered pregnant women in seven (7) antenatal clinics in Epe Local Government Area of Lagos State. A sample size of 270 was drawn using proportionate sampling technique. The collected data were analyzed using frequency, percentage, and the Chi-square test of association. The significance level was set at $p < 0.05$. The results showed a statistically significant relationship between knowledge of nutrition and dietary practices, $\chi^2(2) = 78.201, p < 0.05$. However, there was no statistically significant relationship between cultural food beliefs and dietary practices, $\chi^2(1) = 1.151, p > 0.05$. The finding also showed that cultural food beliefs do not influence the dietary practices of pregnant women. The study recommends that the government and health agencies should continuously train health workers on nutritional issues, particularly on how to enhance the nutritional knowledge of expectant pregnant women prior to conception. This will help potential mothers improve their dietary practices.

Keywords: Cultural Food Belief, Dietary Practices, Nutritional Knowledge, Pregnant Women

1. Introduction

Pregnancy is the most crucial and nutritionally demanding period in a woman's life. It is a vulnerable state where maternal nutrition and lifestyle greatly influence the health of both the mother and newborn. Therefore, the quantity and quality of nourishment during pregnancy are of utmost importance. Inadequate nutrition during pregnancy can lead to spontaneous abortion, impaired fetal growth, learning disabilities, behavioral problems in the offspring, and poor pregnancy weight gain (Middleton et al., 2013). During pregnancy, the need for nutrients, especially micronutrients, increases compared to other stages of life, resulting in higher nutritional requirements (Das et al., 2018). Many pregnant women in developing countries restrict their food intake for various reasons, such as wanting smaller infants to reduce delivery complications or believing that big babies make delivery difficult (Das et al., 2017; Middleton et al., 2013). As a result, they have low intakes of essential nutrients like protein, energy, ascorbic acid, vitamin A, and iron due to inappropriate nutrition practices.

Adequate nutrition is essential for optimizing pregnancy outcomes (WHO, 2016). It is necessary to have a sufficient dietary intake to provide energy and nutrients for the well-being of both the mother and fetus. Poor nutrition in developing countries, including dietary factors like food restrictions, dietary indiscretion, poor feeding practices, and the quality of the diet, has been linked to child health issues and inadequate maternal care. Sholeye et al. (2014) conducted a study on pregnant women in the southwestern part of Nigeria and found that the mean energy and nutrient intakes, including vitamins A, folic acid, calcium, iron, and sodium, were below the recommended values.

Nutrition knowledge is a vital element in ensuring positive pregnancy outcomes and is integral to achieving healthy dietary behaviors and improving diet quality (Lim et al., 2018; Mugyia et al., 2016; Zalilah et al., 2008). Women's nutrition knowledge prior to pregnancy is also important for increasing maternal awareness. Their nutrition knowledge may be related to the quality of food consumed. Thus, it is crucial for women to have adequate nutrition knowledge regarding dietary practices (Abdirahman, 2019). Good nutrition practices during pregnancy are important for pregnancy performance (Attah & Osadebe, 2022). Mirsanjari et al. (2012) highlighted the benefits that antenatal mothers could gain through nutritional knowledge. Despite the Recommended Nutrition Intake (RNI) in Malaysia, which aims to improve the nutritional status of mothers and reduce the risks of adverse pregnancy outcomes, an increasing proportion of antenatal mothers exceed the healthy weight range (Malaysian Dietary Guidelines, 2017). According to the RNI, nutritional knowledge during pregnancy is necessary to ensure optimal gestational weight gain and reduce complications, both of which are linked to positive birth outcomes and contribute to overall maternal health. However, antenatal mothers do not always adopt these recommendations, and the reasons for this are poorly understood. There is a lack of studies on maternal nutrition knowledge in the local context of Nigeria.

Perceptual food taboos often influence food avoidance during pregnancy (Shahid et al., 2011). Different societies have traditional beliefs regarding harmful foods for women during pregnancy, but they also have foods that are considered beneficial for various reasons. In some African societies, pregnant women, lactating mothers, and children are encouraged to diversify their diets by consuming wild foods to promote maternal and child health and improve child development. For example, Nigerian pregnant women consume zinc-rich seeds in their porridge, as well as leaves and barks from different trees, which are good sources of vitamins, calcium, copper, iron, zinc, protein, and fat. These foods are believed to increase breast milk production, expel intestinal worms, and promote weight gain in infants. Some wild plants are also consumed to ease delivery, stimulate breast milk production, prevent anemia, and strengthen the fetus, thus improving overall health for both the mother and fetus

(Chakona & Shackleton, 2019). A study on the nutritional behavior of expectant mothers in rural India reported that 64% of pregnant mothers restricted all foods during the first six months, believing that having a small baby would make delivery easier (Sood & Kapil, 1984). This study assesses the influence of nutritional knowledge and cultural food beliefs on dietary practices of pregnant women in Epe Local Government Area, Lagos State, Nigeria

1.1. Statement of Problem

Malnutrition is ranked as one of the major causes of maternal mortality and is a significant factor in pregnancy outcomes. According to data from the World Health Organization (2023), developing nations accounted for 99% of all maternal deaths worldwide. Nigeria has one of the highest maternal death rates in the world, with a ratio of 917 deaths per 100,000 live births (WHO, 2023). Nigerian women die due to complications associated with pregnancy and child health. The maternal mortality ratio is about a hundred times worse than that in industrialized countries, highlighting significant disparities in international public health, as reported by UNICEF (2011). Furthermore, the report emphasizes that poor dietary practices, low hemoglobin levels, and malaria are among the most common causes of poor pregnancy outcomes in Nigeria. Given that poor dietary practices have been identified as a major factor responsible for poor pregnancy outcomes, as well as the morbidity and mortality of pregnant women (Grewal et al., 2008), this study aims to assess the influence of nutritional knowledge and cultural beliefs about food on the dietary practices of pregnant women. The goal is to provide appropriate nutrition awareness to prevent nutrition-related pregnancy complications

1.2. Purpose of the Study

The main purpose of this study was to assess the influence of nutritional knowledge and cultural food beliefs on dietary practices of pregnant women in Epe Local Government Area, Lagos State, Nigeria. The specific purposes were to:

- (a) Examine if cultural food beliefs have influence on dietary practices of pregnant women in Epe Local Government Area of Lagos State.
- (b) Determine if there is any significant relationship between knowledge of nutrition and dietary practices of pregnant women in Epe Local Government Area of Lagos State.
- (c) Determine if there is any significant relationship between cultural food beliefs and dietary practices of pregnant women in Epe Local Government Area of Lagos State.

1.3. Research Question

- (a) What is the influence of cultural food beliefs on the dietary practices of pregnant women in Epe Local Government Area of Lagos State?

1.4. Hypothesis

The following research hypotheses were raised to guide the study:

- (a) There is no significant relationship between knowledge of nutrition and dietary practices of pregnant women in Epe Local Government Area of Lagos State.
- (b) There is no significant relationship between cultural food beliefs and dietary practices of pregnant women in Epe Local Government Area of Lagos State.

2. Materials and Methods

2.1. Design for the Study

A descriptive research design was used in this study, which employed a cross-sectional approach.

2.1.1. Ethics Statement

This research project was approved by Department of Home Economics, Lagos State University of Education, Epe, Lagos State, Nigeria. Informed consent of all respondents was duly obtained.

2.2. Area of the Study

This study was carried out in the Epe Local Government Area of Lagos State, Nigeria.

2.3. Population and Sample

The population of the study consisted of all registered pregnant women attending seven (7) antenatal clinics in the Epe Local Government Area of Lagos State, as indicated by the hospital records from 2019. During the period of this study (January 25 to May 1, 2021), there were a total of 538 registered pregnant women in these clinics. The sample size for the study was determined to be 270, using the proportionate sampling technique. This involved selecting fifty percent (50%) of the pregnant women. The population and sample size of the pregnant women are presented in Table 1.

Table 1: *Distribution of Population and Sample Size of Registered Pregnant Women (PW)*

Hospital	Number of PW	Sample size (50%) of PW
Epe General Hospital	146	73
Epe Primary Health Centre	112	56
Eredo Primary Health Centre	25	13
Mojoda Primary Health Centre	18	9
Odomola Primary Health Centre	12	6
Agbowo General Hospital	109	55
Ketu Ejirinrin General Hospital	116	58
Total	538	27

2.4. Instrument for Data Collection and Study Procedure

A structured questionnaire, titled "Nutritional Knowledge and Cultural Food Beliefs Questionnaire (NKCFBQ)," was used to gather information from the respondents. The questionnaire had two sections. Section A collected information on the socio-economic status of pregnant women, including age, marital status, academic qualification, occupation, religious belief, and ethnicity. It also gathered information on the obstetric characteristics of the pregnant women, such as stages of pregnancy and number of previous pregnancies. Section B recorded information on the dietary practices, food frequency, nutritional knowledge, sources of nutritional knowledge, and cultural food beliefs of the pregnant women. The sections of the questionnaire that addressed the research hypotheses were analyzed and presented in this paper. A total of 270 copies of the questionnaire were administered to the pregnant women, with the assistance of three community health extension workers.

2.5. Data Collection Technique

The data was collected from the respondents with the help two research assistants.

2.6. Data Analysis Technique

Data were collected and analyzed using frequency, percentage and Chi-square test of association.

3. Results and Discussion

The results of analysis of the research hypotheses are presented below.

3.1. Research Question: What is the influence of cultural food beliefs on the dietary practices of pregnant women in Epe Local Government Area of Lagos State?

Table 2: Pregnant Women Dietary Practices Based on Respondents' Nature of Cultural Beliefs

Cultural belief (N= 270)			
Yes (n=44)		No (n=226)	
Dietary Practices	%	Dietary Practices	%
Rice	27.3	Rice	27.9
Efo	25.0	Efo	26.1
Pap	20.5	Fried Plantain and egg	22.6
Meat	20.5	Pap	21.7
Ewedu	20.5	Meat	21.7
Fried Plantain and egg	20.5	All foods	19.9
Eba	18.2	Ewedu	19.9
Fruits	18.2	Eba	19.0
All foods	18.2	Fruits	18.1
Okro	15.9	Okro	16.8
Egusi soup	15.9	Egusi soup	16.4
Yam	13.6	Yam	15.0
Amala	13.6	Amala	14.2
Garri	11.4	Beans	12.8
Beans	11.4	Semo	12.4
Vegetable	11.4	Garri	11.9
Bournvita	11.4	Vegetable	11.9
Semo	11.4	Bournvita	11.5
Egg	9.1	Egg	10.6
Fufu	6.8	Soft drink	8.4
Fried fish and meat	6.8	Fufu	8.0
Soft drink	6.8	Akara	8.0
Wheat	6.8	Wheat	7.9
Akara	6.8	Fried fish and meat	6.2
Tea	4.5	Milk and sugar	5.8
Milk and sugar	4.5	Plantain	5.8
Plantain	4.5	Tea	5.3
Noodles	2.3	Noodles	3.5
Porridge	2.3	Porridge	3.1
Pepper soup	2.3	Pepper soup	1.8
Chocolate	0.0	Chocolate	1.3

The dietary practices of pregnant women in Epe Local Government Area of Lagos State as shown in Table 2 revealed that rice (27.3%), *efo* (25.0%), pap (20.5%), meat (20.5%), *ewedu* (20.5%), *eba* (18.2%), fruits (18.2%) and all foods (18.2%) were the major dietary intakes of pregnant women who believed that some foods are culturally forbidden. Also, women who believed that no food is culturally

forbidden had rice (27.9%), *efo* (26.1%), fried plantain and egg (22.6%), pap (21.7%), meat (21.7%), all foods (19.9%), *ewedu* (19.9%), *eba* (19.0%), and fruits (18.1%) among their major dietary intakes. These results suggest that cultural food beliefs have no influence on pregnant women dietary practices.

3.2. Hypothesis 1: There is no significant relationship between knowledge of nutrition and dietary practices of pregnant women in Epe Local Government Area of Lagos State.

Table 3: Relationship between Nutrition Knowledge and Dietary Practices of Pregnant Women

Knowledge of Nutrition	Dietary Practices		χ^2 value	df	p-value	Remark
	Yes	No				
Low	35 (21.7)	126 (78.3)	78.201	1	.000	Significant
High	83 (76.1)	26 (23.9)				

Note: Figures in parentheses are in percentages

A chi-square test for association between knowledge of nutrition and dietary practices of pregnant women in Epe Local Government Area of Lagos State as shown in Table 3 (all expected cell frequencies were greater than five) reveals that out of 161 respondents with low knowledge of nutrition, 35 representing 21.7% reported that nutrition knowledge affected their dietary practices. Also, out of 109 respondents with high knowledge of nutrition, 83 representing 76.1% reported that nutrition knowledge affected their dietary practices. From these results, it was discovered that there was a statistically significant relationship between knowledge of nutrition and their dietary practices, $\chi^2(2) = 78.201, p < 0.05$. Figure 1 illustrates this information on a clustered bar chart.

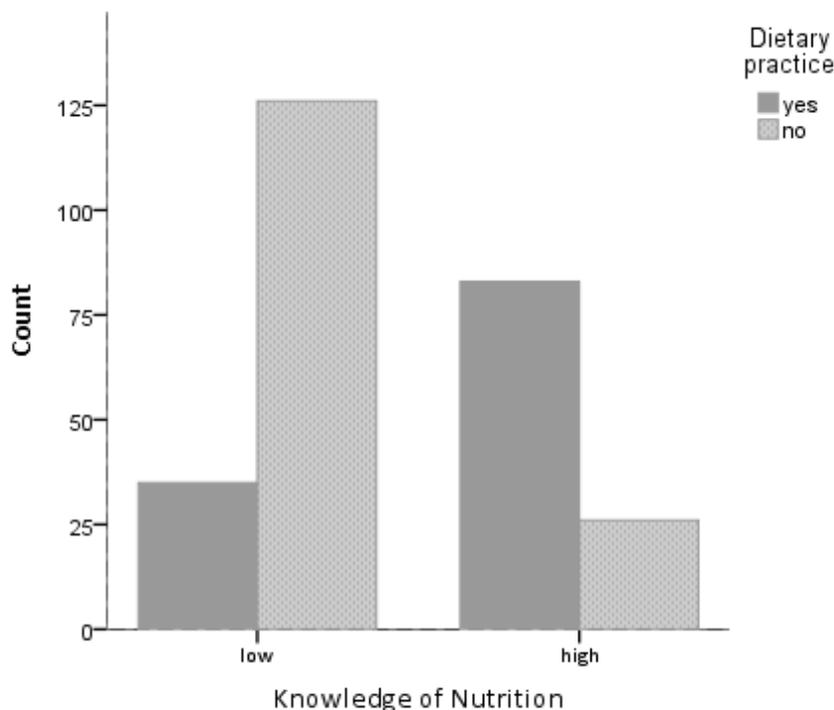


Figure 1: Clustered Bar Chart of Dietary Practices by Knowledge of Nutrition

3.2. **Hypothesis 2:** There is no significant relationship between cultural food beliefs and dietary practices of pregnant women in Epe Local Government Area of Lagos State.

Table 4: Relationship between Cultural Food Beliefs and Dietary Practices of Pregnant Women

Culturally Forbidden Food	Dietary Practices		χ^2 value	df	p-value	Remark
	Yes	No				
Yes	16 (36.4)	28 (63.6)	1.151	1	.283	Not Significant
No	102 (45.1)	124 (54.9)				

Note: Figures in parentheses are in percentages

A chi-square test of association which shows the relationship between cultural food beliefs and dietary practices of pregnant women in Epe Local Government Area of Lagos State (all expected cell frequencies were greater than five) in Table 4 reveals that out of 44 respondents who identified that some foods were culturally forbidden, only 16 representing 36.4% reported that cultural beliefs affected their dietary practices. Also, out of 226 respondents who identified that no foods were culturally forbidden, about 102 representing 45.1% reported that cultural beliefs affected their dietary practices. From these results, it implies that there was no statistically significant relationship between cultural food beliefs and their dietary practices, $\chi^2(1) = 1.151$, $p > 0.05$. Figure 2 illustrates this information on a clustered bar chart.

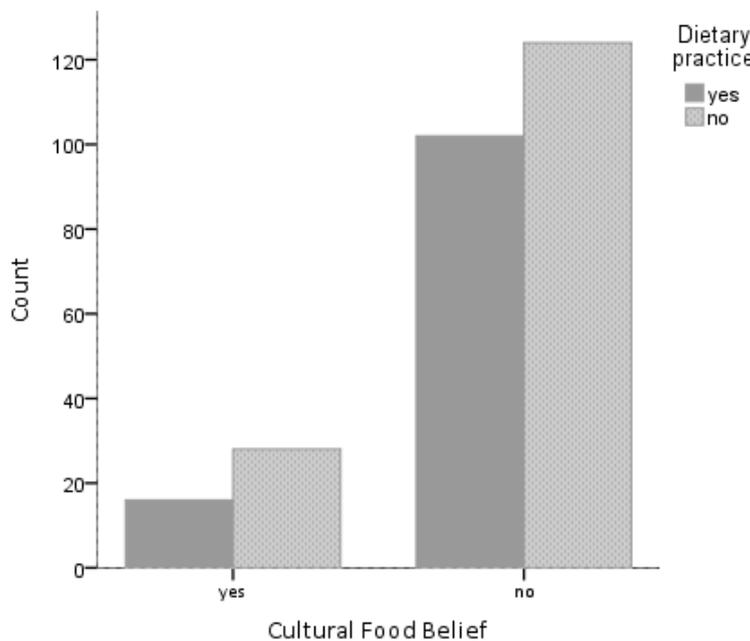


Figure 2: Clustered Bar Chart of Dietary Practices by Cultural Food Beliefs

The paper examined the nutritional knowledge and cultural food beliefs on dietary practices of pregnant women in the Epe Local Government Area, Lagos State, Nigeria. The findings of the research question revealed that cultural food beliefs had no influence on the dietary practices of pregnant women in the Epe Local Government Area of Lagos State. The findings revealed that rice (27.3%), *efo* (25.0%), pap (20.5%), meat (20.5%), *ewedu* (20.5%), *eba* (18.2%), fruits (18.2%), and other foods (18.2%) were consumed by pregnant women with cultural food beliefs. Participants without cultural food beliefs also consumed rice (27.9%), *efo* (26.1%), fried plantain and egg (22.6%), pap (21.7%), meat (21.7%), other foods (19.9%), *ewedu* (19.9%), *eba* (19.0%), and fruits (18.1%) among their dietary intakes. In view of these findings, cultural food beliefs had no influence on the dietary practices of the participants. This shows that most staple foods such as rice, vegetables, yam, pap, fruits, meat, and fish are all culturally accepted foods prior to, during, and after pregnancy and not considered as food taboos. Food taboos refer to the restriction of specific foods as a result of social, traditional, or religious customs. In many traditional societies, cultural norms and customs govern behaviors during critical life stages such as pregnancy (Zerfu et al., 2016). Pregnancy is a critical period when physiological nutrient demands are substantially increased. As such, a pregnant woman is expected to increase the amount and quality of foods she consumes in order to meet the increased nutrient requirement for both the woman and the fetus (Zerfu et al., 2016).

The study found a significant relationship between knowledge of nutrition and dietary practices of pregnant women in the Epe Local Government Area of Lagos State. Dietary intake refers to the daily eating patterns of an individual, including specific foods and calories consumed, and relative quantities, which can be influenced by an individual's knowledge of nutrition. It is generally considered to include all foods and beverages consumed orally. Nutritional knowledge may have a direct effect on food choices. Miller and Cassady (2015) described nutrition knowledge as knowledge of concepts and processes related to nutrition and health, including knowledge of diet and health, diet and disease, foods representing major sources of nutrients, and dietary guidelines and recommendations. Pregnancy is a period during which the body goes through numerous physical and hormonal changes. Good dietary practices during pregnancy may result in the expected weight gain, growth, and development of the fetus (Ota et al., 2015). Girard and Olude (2014) also posited that good dietary practices help improve birth outcomes and prevent the child from developing diseases such as heart disease and obesity later in life. Inadequate or excessive amount of some nutrients may cause malformations or medical problems in the fetus, and neurological disorders and handicaps are a risk for malnourished mothers (Girard & Olude, 2014; WHO, 2016). Poor dietary intakes during pregnancy have been linked to abnormal gestational weight gain, increased maternal infections, preeclampsia, anemia, preterm birth, or miscarriage (Middleton et al., 2013). In contrast to the above finding, Ezech et al. (2021) found that the nutrition knowledge assessment of pregnant women between the ages of 10-19 showed that about 45.2% were knowledgeable about pregnancy nutrition. Dietary practices showed that 40.9% of the subjects ate three meals daily, 81.1% ate pastries, 61% consumed soft drinks, 15.1% consumed hot drinks (alcohol), 81% did not consume stout, and 70.4% did not eat bitter cola. The researchers in their study found a significant association between dietary practices and gestational age of the respondents. Nutrition knowledge of the pregnant women was found to be poor but had no significant effect on the dietary practices of pregnant women attending clinics in the study area (Ezech et al., 2021).

The findings also revealed that there was no significant relationship between cultural food beliefs and dietary practices of pregnant women in the Epe Local Government Area of Lagos State. Chakona and Shackleton (2019) stated that cultural food beliefs influence the food intake of people,

including pregnant women, making them more vulnerable to several micronutrient deficiencies, especially vitamin A, folate, iodine, iron, calcium, and zinc, all of which are crucial during pregnancy. Good nutrition is recognized as a major contributing factor in reducing mortality, and nutrition research continues to demonstrate that diets play a major role in disease prevention. Nutrition affects the overall development not only of individuals but also of entire nations. This is because a diet deficient in nutritive value can have a long-term impact on health, which could lead to diet-related disorders. This, however, usually results in less productivity as physical output and capacity decrease, leading to economic loss on a macro level and directly affecting the development of an entire nation. To lead an active and healthy lifestyle, a well-balanced diet combined with regular physical exercise is crucial. Good dietary practices boost immunity, reduce the risk of mental and physical disorders, and help fight diseases. Micronutrients such as vitamins and minerals are the backbone of a good and well-balanced nutritive diet. Pregnant women who adhere to culturally-designed nutritional diets should be monitored by healthcare providers to protect them from the risks of poor nutrition. In the future, researchers should conduct large community-based surveys to identify local socio-cultural beliefs and practices that could potentially improve the nutritional knowledge of pregnant women.

4. Conclusion

Cultural food beliefs do not influence the dietary practices of pregnant women in the study area. Nutritional knowledge showed a significant relationship with the dietary practices of pregnant women in the study area. However, the relationship between cultural food beliefs and dietary practices among pregnant women was not statistically significant. Thus, providing nutrition education to pregnant women during their antenatal visits can influence their nutritional knowledge. Nutrition education could also keep them informed about the importance of taking food supplements when they experience a loss of appetite. This can help improve dietary intake during pregnancy and promote adherence to supplements, as the recommended nutrient intake levels for supporting good pregnancy outcomes are not fixed values. Government and health agencies should continuously train healthcare workers on nutritional issues, particularly on how expectant pregnant women can enhance their nutritional knowledge prior to conception. This will help potential mothers improve their dietary practices.

Acknowledgements

The authors would like to express their appreciation to the two reviewers for their helpful feedback. Their insights have allowed us to further clarify and enhance our study.

Conflict of Interest

The authors declare no conflict of interest.

Authors' Contributions

The study's conceptualization, methodology, and implementation were performed by ROJ, AAE and ATI. The manuscript's final version were approved by all authors.

Data Availability Statement

The dataset used for this study is available on request. For further inquiries can consult the authors.

Funding Information

This study was not funded by any organization.

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Publisher: Department of Home Economics and Hospitality Management Education, University of Nigeria, Nsukka 41001, Nigeria

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