

9 Gender Medicine and Phenomenological Embodiment

Tania Gergel

Introduction

Background to Philosophy of Gender, Medicine, and Embodiment

Gender has been the focus of considerable philosophical and general academic interest since the World War II. During the 1970s, in the wake of the intellectual and political revolutions of the 1960s, both gender studies and feminist philosophy emerged as academic disciplines that received increasing attention over the subsequent decades (Gould and Wartofsky, 1976; Zosuls et al., 2011). At the same time, postwar medicine itself became the focus of increased philosophical interest and scrutiny. On one side, philosophers of science, such as Boorse (1977, 1975) and Schaffner (1993), attempted to understand medicine and its processes within a value-free scientific framework. Meanwhile, others such as Engelhardt (1996) and Munson (1981) sought to draw attention to and to explain the evaluative and socially determined aspects of medicine. A philosophical examination of gender and medicine, then, considers the nature of the conceptual relationship between them, asking questions such as: What do we mean by “gender?”; What is the relationship between gender and the theory and practice of medicine?; Are there ways in which we might rethink our understanding of gender, which could help to overcome some of the difficulties surrounding gender with contemporary medicine?

Finally, there is the philosophical notion of embodiment, developed most extensively in the work of Merleau-Ponty. Phenomenology challenged conventional notions of objectivity, by making the first-person experience of phenomena primary within epistemology. Merleau-Ponty’s (2002) particular challenge to objectivity stems largely from rejecting the assumption of the body as object, which he sees as central to Cartesian dualism. He proposes, instead, a unity of mind/soul and body, so that perception and therefore cognition and knowledge

of the world is truly embodied, rather than being absorbed through bodily perceptions that must then be discounted if we are to reach understanding:

[T]he psycho-physical event can no longer be conceived after the model of Cartesian physiology and as the juxtaposition of a process in itself and a *cogitatio*. The union of soul and body is not an amalgamation between two mutually exclusive terms, subject and object, brought about by arbitrary decree. It is enacted at every instant in the movement of existence. (p. 102)

Simone de Beauvoir, most notably in *The Second Sex*—published in 1949 and heavily influenced by Merleau-Ponty's 1945 *Phenomenology of Perception*—took embodiment into the sphere of sex and gender. Like Merleau-Ponty, she argued that we engage with the world as embodied beings, but focused on the role of sex and gender within this process of engagement.

De Beauvoir's (2011) work has been seen as the origin of modern feminism, with her observations concerning the social construction of gender, which were central to the emergence of the sex/gender distinction within feminism and gender studies. Most famous, perhaps, is her pronouncement that "one is not born, but rather becomes, woman" (p. 330). De Beauvoir's main concern is with the disadvantages brought upon women through the ideas of otherness associated with the female gender. However, even if her primary focus is on the social context of embodiment, the overall principle of phenomenological embodiment means that there is no fundamental separation of biology and a social understanding of gender within her work. Aspects of female biology, along with how these are regarded and treated within the world of which a woman is a part, are all essential to the individual's understanding of the world and how they themselves are understood by others.

Some Central Distinctions in Gender and Medicine

In the late 1960s, psychologists started to differentiate between sex and gender in order to explain the difficulties faced by transsexuals, whose body and gender characteristics were felt to be in opposition. This distinction was then adopted within feminism to delineate the two ways of differentiating between male and female. "Sex" was understood as referring to the natural biological differences between the sexes, such as chromosomes, hormonal profiles, internal and external sex organs. "Gender" by contrast was understood as the characteristics attributed to "masculine" and "feminine" within society, and relates to social role, behavioral tendencies, and identity. This distinction became important in trying both to explain and challenge the roles and identities attributed to women and men within society. With its suggestion that many of the

characteristics and roles attributed to women within society depend far more upon socially constructed notions of the “feminine” than on biology, it was used to challenge the biological determinism underlying much of the existing gender bias at the time (Mikkola, 2012; Zosuls et al., 2011).

While the sex/gender distinction has been both useful and influential, the notion that there are essential differences between the sexes has been criticized from various directions. Critics of gender realism argue that there is no essential feature or condition that is shared by all women as opposed to men and which can be seen as a fundamental gender difference. Spelman (1988), for example, argues that gender varies according to its social and cultural context, while Butler (2006) argues that feminist notions of what constitutes the female gender are, like other views of the feminine, normative rather than natural. Conversely, thinkers, such as Mikkola (2006), contend that such problems might not be reasons for rejecting gender realism tout court.

There have also been challenges to the notion that there are absolute and objective natural biological distinctions between the sexes. Jaggar (1983) and Fausto-Sterling (2005), for example, have both written extensively about how the social roles and expectations allocated to women influence their physiological development and contribute to the biological differences that emerge between the sexes.

Even though such debates continue to rage, there is general agreement that broad notions of the sex/gender distinction and what these terms conventionally entail are deeply entrenched and influential within contemporary society. The next stage, then, is to consider how these relate to medical theory and practice. In many ways, we can see the sex/gender distinction as correlating with the naturalist/normativist divide within philosophy of medicine (Carel, 2008, pp. 10–11), with sex as a “naturalist” and gender a “normativist” concept. Naturalist accounts of health and disease, usually associated with biomedical reductionism, present disease as some type of deficiency in the normal biological function of the body, an account fitting closely with the dominant medical model within contemporary Western medicine.

Challenges to the biomedical naturalist model have come from those who suggest that biomedical reductionism is not sufficient to account for our contemporary notions of health and disease. Normativist approaches suggest that our understanding of health, disease, and medicine are suffused with values and, to a large extent, socially and culturally determined. At the most extreme end, perhaps, were the bastions of postwar antipsychiatry, such as Szasz (1991, 2010), who saw “mental illness” as a myth created by society to control socially unacceptable patterns of behavior, rather than arising from any biochemical brain dysfunction.

Yet, normativist principles can also be seen as important within contemporary debate surrounding what seem, at first glance, to be purely biomedical

criteria. Recent controversies surrounding treatment and prophylactic maintenance strategies for high cholesterol, for example, point to the way in which a diagnosis of high cholesterol and prescription of statins has become something of a social phenomenon. They are often prescribed by doctors as an easier alternative to lifestyle change, even though emerging evidence suggests that this strategy would have greater efficacy and less adverse effects in the fight against heart disease. Critics suggest that the science of cholesterol management and pharmacology has resulted from a change in approach to patient care among clinicians, rather than stemming primarily from biomedical data and evidence (Ornish, 2002; Sinatra et al., 2014). Similarly, criticisms of the widely used body mass index (BMI) as the measure for obesity protest that such a measure is arbitrary, takes no account of body composition, and that, when other measures are used, there may be, for example, significant changes in statistics relating to ethnicity and obesity (Ahima and Lazar, 2013; Cawley and Burkhauser, 2006). As we can see, there are arguments for questioning the “natural” status of even the most seemingly biomedical of criteria. Within philosophy of medicine, as with gender, the dominance of underlying assumptions based on naturalist/normativist distinctions is recognized, but also widely challenged (Hamilton, 2010; Kingma, 2007).

Phenomenological approaches to medicine have also questioned both the normativist and naturalist positions by applying aspects of phenomenological philosophy to medicine. Most influential aspects are taken to be the importance of the first-person subjective experience of illness for medical understanding, the need to rethink theoretical assumptions, and, of particular relevance here, the concept of embodiment as central to understanding the human experience of illness and breaking down the distinctions such as subjectivity/objectivity, body/mind, and naturalism/normativism (Carel, 2008; Gergel, 2012).

Medical Diagnosis and Gender Stereotypes—Over-, Under-, or Misdiagnosis?

Dominant Stereotypes of the Female Gender

Historically, the female gender has been associated with physical and psychological weakness and deficiency. Aristotle portrayed women as morally and intellectually weaker than men: “a man would be thought cowardly if his courage were only the same as a courageous woman” (*Politics* 1277b); “the slave is wholly lacking the deliberative element; the female has it but it lacks authority” (*Politics* 1260a). Tragic heroines such as Electra are left to waste away in excessive outpourings of emotion, impotent to act without a male champion. While Plato’s acceptance of women as fit to occupy all social roles within his ideal

republic may seem progressive, Plato's Socrates still chastises the lamentations of his male companions at his impending death, saying that concern over such "absurd behaviour" was the reason why he sent the women away (117d). Female characters who defy such stereotypes are portrayed as male, while physical and, in particular, emotional weakness in men are labeled as female qualities. Finally, Seneca writes that, should he become ill, he will choose to do "nothing immoderately, nothing effeminately" (*Letters* 64.1).

Works such as de Beauvoir's *The Second Sex* trace the ways in which women have been defined as man's weaker counterpart throughout history, until the twentieth century. Micale (2009, p. 178) summarizes the views of the Austrian philosopher Weininger, at the end of nineteenth century: "there are 'laws' of masculinity and femininity, just as there are laws of physics, and these establish unmistakably the inferiority and insignificance of women." The influence of such gender norms and realism are clearly seen in the development of notions of psychiatric disorder. Hysteria, for example, was considered an exclusively female disease until Charcot and Freud (Tasca et al., 2012). Even then, diseases such as "male hysteria" and "shell-shock" were gendered and seen as manifestations of weakness and effeminacy (Micale, 2009, p. 162ff.).

Gender Stereotyping and Psychiatric Diagnosis

Even today, the influence of such gender stereotypes may well be felt in the gender disparity of certain psychiatric diagnoses, in ways which may be detrimental to both male and female patients for different reasons. According to the World Health Organization (WHO), unipolar depression is twice as common in women as in men, while alcohol dependence is more than twice as common in men than in women and men are three times more likely than women to be diagnosed with antisocial personality disorder. A recent WHO (2015) report on "Gender disparities in mental health" discusses how research reveals that gender bias and stereotyping in the treatment of female patients has been recorded since the 1970s and that women with similar symptoms to men are more likely to be diagnosed with depression than men and, once diagnosed, to be treated with psychotropic medication.

Moreover, women are more likely to seek help and disclose mental health problems to a primary care physician, while men are the principal users of specialist services and inpatient treatment. It seems that disparities in diagnosis and treatment may well be related to gender-based expectations:

This suggests that gender based expectations regarding proneness to emotional problems in women and proneness to alcohol problems in men, as well as a reluctance in men to disclose symptoms of depression, reinforce

social stigma and constrain help seeking along stereotypical lines. (WHO, 2015, pp. 8–9)

It seems that men may still be pressurized by gender expectations not to seek help until a mood disorder has emerged, to self-medicate through substance abuse, or to give expression to their problems through antisocial behavior.

For women, however, a diagnosis of depression or anxiety appears to be given all too easily, at a threshold where such symptoms would not be given the same diagnosis in a male counterpart. This may then result in physical disorders being missed. A commonly discussed example is the misdiagnosis of hyperthyroidism and hypothyroidism in women as psychiatric disorders. Klonoff and Landrine (1996) have written a guide for clinicians, detailing particular physical health problems that are likely to be misdiagnosed as psychiatric conditions. They maintain throughout that such a guide is necessary, since clinicians are led by gender-stereotyping to diagnose mood disorders where another medical explanation is correct. On the dangers of misdiagnosing thyroid disorders, Klonoff and Landrine write:

Once misdiagnosed, these patients are then often treated with all “the right” pharmacological and psychotherapeutic interventions for a psychiatric disorder that the patients do not have. The patients therefore show no improvement in treatment, and that often leads to increasing the treatment. This aggressive treatment, as well as the failure to treat the disorder the patient actually has, then elicits additional symptoms and leads to patient deterioration or death. This unfortunate sequence of events is the logical and frequent outcome of assuming that depressed and anxious women necessarily have psychiatric disorders . . . this sequence is prototypical of responses to a diversity of other physical disorders. (pp. 18–19)

The phenomenon known as diagnostic overshadowing, in which a diagnosis of mental disorder leads to physical disorders being wrongly diagnosed as psychogenic (Jones et al., 2008; Nash, 2013), may well also be more common among women than men (Wilcox, 1992).

It seems that physical disorders are being missed or diagnosed as psychiatric because undue attention is paid to stress, as compared to men. A stressed or emotional woman is simply viewed as fulfilling their gender norm; an exceptionally stressed or emotional woman is fulfilling the more extreme version of a gender norm, which manifests itself as some form of mental disorder. At such times, it appears that gender stereotyping or even gender realism, which makes a fundamental connection between woman and excessive emotion or inability to cope, may be operating within a medical context. Illnesses may, effectively, be misdiagnosed because socially constructed beliefs about gender are taken as

essential elements of normal function of the female sex, rather than extraneous social stereotypes, and symptoms are then understood within this framework (Munch, 2004).

Gender-based Disparities in Physical Healthcare

It appears that such problems are not restricted to mental or endocrine disorders, but may infiltrate into other areas of physical medicine, where there might at first seem to be little room for such confusion. For example, it has been widely reported that heart disease is misdiagnosed or underdiagnosed in women, as compared to men. Women are diagnosed later in the course of the illness and, consequently, there is increased mortality (Rogers, 2004, p. 56). Bess (1995, p. 41) described the growing evidence of gender disparities in heart disease treatment in the United States, suggesting that it was evident at every stage of the illness, to the point where “gender bias may result in delayed or inaccurate diagnosis, unequal medical interventions, and higher mortality for women who undergo invasive cardiac and surgical procedures.” This phenomenon appears widespread. A 2002 Spanish study concluded that women receive treatment at a more advanced stage of heart disease than men, which may be attributed to “gender differences occurring in any (or all) phases of the disease process” (Aguilar et al., 2002, p. 557). A 2009 Italian study concludes that, in the early twenty-first century, “Italian women remain less likely than men to undergo surgical procedures for coronary artery disease,” and this is consistent with the situation in the “US, UK and elsewhere.” The Italian study shows that the “disparity persists even after taking account of differences in severity of illness” (Nante et al., 2009, p. 204).

For heart disease, it appears that women are still less likely than men to receive treatment or receive treatment later, even when their symptoms are of equivalent severity (Nante et al., 2009, p. 204). Numerous studies reveal treatment disparity elsewhere (Brezinka, 1995; Chang et al., 2007; Hochleitner, 2000; Hsich et al., 2014; Jibrán et al., 2010; Kobashigawa, 2014; Regitz-Zagrosek and Seeland, 2012, p. 10; Zhang et al., 2013). In a recent survey of “sex and gender differences in clinical medicine,” it is even noted that “undertreatment of women is most pronounced by male physicians” in the cardiovascular field, diabetes, and gynecology (Regitz-Zagrosek and Seeland, 2012, p. 16).

A variety of reasons are suggested for treatment disparity, and there are widespread calls for further research (Aguilar et al., 2002; Chang et al., 2007; Chiamonte and Friend, 2006; Nante et al., 2009). The possibility that some of these disparities can be explained by a male bias within research, which fails to account for biomedical particularities of pathology and treatment of illness within women, is considered later. However, there have also been suggestions

that gender stereotyping may well be a significant factor in generating gaps within diagnosis and treatment. How, then, might gender stereotypes influence diagnosis and treatment? And, are the influential stereotypes within this context consistent with general stereotyping of women in medicine and elsewhere?

A 2006 US study reveals interesting results, showing that both medical students and residents underdiagnosed heart disease in women compared to men, even when they had the same illness profiles, but only when the illness presented in the context of stress. This challenges the commonly held belief that men are more likely to receive the diagnosis because of the perception of heart disease as a male condition. Moreover, this was true regardless of study participants' own gender or attitude toward women. The 2006 study further developed the results that emerged from a 1998 study, revealing that "high-stress women consistently received lower cardiac attributions" and argues that "the main issue in the misdiagnosis of women is not the perceived incidence or prevalence of CHD as in the heuristic or stereotype model but the centrality given to women's stress and psychological symptoms" (Chiaramonte and Friend, 2006, p. 256). For men, by contrast, "stress symptoms may in fact be viewed as additional information (e.g. risk factor) and may augment and affirm, rather than detract from, the cardiac evaluation" (p. 257). The authors warn against drawing oversimplified or overly significant conclusions from their study and point to an urgent need for further research. Nevertheless, the results are striking and suggest a clinical tendency to perceive stress in men as more unusual and more likely to have an underlying physical cause than in women.

Gender disparities occur not only with heart disease, but also, for example, in stroke diagnosis, where it seems that early stroke symptoms are more likely to be missed among women (Newman-Toker et al., 2014; Smith et al., 2005) or in Parkinson's Disease (Saunders-Pullman et al., 2011). By contrast, fibromyalgia, a chronic pain disorder, with no obvious biomedical cause, is far more often diagnosed in women. It has been suggested that the prevalence of fibromyalgia diagnosis among women stems more from gender bias than from genuine biomedical phenomena (Katz et al., 2008, p. 152). A first study examining physician perspective in relation to the condition suggests that physicians will diagnose fibromyalgia more readily in women than in men and will seek additional physical explanations for symptoms when presented by men (Katz et al., 2010).

Some Conclusions on Gender and Diagnosis

Research reveals that particular conditions are diagnosed and treated more or less readily in males and females, even when there may be similar symptoms. While there is widespread consensus as to the need for further research into

these gender divisions and possible biases, some preliminary conclusions can perhaps be drawn. It seems that certain beliefs about male and female characteristics and behaviors are playing a part in medical diagnosis and treatment, with potentially severe effects. For example, a view of women as more prone to emotional distress and less able to deal with pain may lead to overdiagnosis of mood disorders and apparently psychogenic conditions such as fibromyalgia, along with late or underdiagnosis of thyroid disorders or cardiovascular diseases, when the role of mental disorder or stress in the production of symptoms is overestimated, as compared to among men. Conversely, men may feel the pressure not to seek help and, consequently, not receive timely or appropriate treatment for psychological problems. It has also been suggested that the lower value placed on women by either themselves or others, as well as the pressure to perform a “caring” role may also lead to women’s health problems being overlooked.

In view of all this, there appears to be sufficient evidence to suggest that deeply entrenched gender stereotypes are being taken as indicative of substantive differences between the sexes, and that this is still affecting medical diagnosis and treatment within contemporary medicine. Further research into gender discrepancies within medicine should explore the significance of such attitudes.

The Male Sex as Norm—Overdiagnosis and Exclusion of Female Biology

When it comes to biological differences between the sexes, often classified as “sex” rather than “gender” differences, one might imagine that the situation is more objective and less open to normative biases. Here, however, a different pattern seems to emerge. While physiological differences between the sexes may largely be a matter of natural biology, the normative evaluation and treatment of such differences seems laden with gender-based values.

Laqueur’s (1992) “one-sex theory” account of the history of biological sex suggests that, from the Greeks to the Enlightenment, it was widely believed that there was only one sex and that women’s sexual organs were an inverted version of men’s. During the eighteenth century the model changed. While it was then accepted that there were distinct biological differences between the sexes, socially constructed gender differences and health differences rooted in socio-cultural differences were then frequently attributed to “female reproductive anomalies” (Hammarström et al., 2014, p. 185). As de Beauvoir wrote in 1949, the female has, throughout history, been viewed as the “other,” in relation to the male norm, and the dominance of such ideas still appears to manifest itself within medicine. I explore two different consequences of such dominance: first,

the way in which normal biological phenomena exclusive to women, such as reproductive stages, are interpreted in terms of pathology and abnormality; second, the way in which male health and biology appear to be taken as the norms within evidence-based medicine (EBM), leading to the exclusion or deprioritization of women within research.

The Medicalization of the Female Life-stages

As women's societal roles within the developed world have become progressively less restricted by gender expectations, and female reproduction has become less of an impediment to gender equality, it appears that female biological life-stages have become increasingly medicalized. While much of this can be attributed to the availability of medical procedures that have led to a striking decrease in risk to mother and child through pregnancy and childbirth, for example, there is also an increasing focus on how excessive medicalization of such life-stages can in itself lead to problems for women.

Pregnancy and childbirth have come to be seen as a departure from a healthy norm. Mullin (2005, p. 54), for example, says that medicalized pregnancy "involves interpreting pregnancy itself as a disruption to health that necessarily requires expert medical intervention, and thinking of pregnancy as primarily about health and illness." Ironically, at the same time, medical explanations are increasingly sought for infertility, regarded as abnormal dysfunction of female biology (Greil and McQuillan, 2010, p. 138), so that it appears that both pregnancy and its absence are viewed as, in some way, biomedically dysfunctional.

While the advancement of obstetrics and better awareness of what substances or behaviors may be harmful to an unborn child have been enormously beneficial for pregnant women and fetuses, overmedicalization can be seen to engender excessive medical interventions or overly restrictive health recommendations in the absence of proper evidence. Certain practices, such as an increase in surgical births and episiotomy, have generated significant controversy (Demontis et al., 2011; Hartmann et al., 2005; Pietras and Taiwo, 2012).

Interestingly, overmedicalization of childbirth, in the absence of good evidence, may lead to converse, but deleterious, consequences. Feminist opposition to the medicalization of pregnancy may lead women to false expectations of childbirth and to underestimate legitimate dangers (Crossley, 2007). At the same time, significant difficulties arise from women requesting Caesarean rather than "natural" births, when there is no legitimate medical indication for such an intervention (Demontis et al., 2011; Kalish et al., 2008). Women may be exposing themselves and their babies to unnecessary risks, either through embracing an unsuitable medical model of a normal birthing situation or

through rejecting the potential medical difficulties of an abnormal or a dangerous birthing situation, in an attempt to refuse what they perceive as the over-medicalization of women.

The situation during pregnancy is also complicated once a medical model of pregnancy is embraced. The notion of pregnancy as a high-risk health condition and the consequences of such a notion has received a great deal of critical attention, and there is a vast literature, both academic and popular, on this topic. Some of the most interesting analyses can be found in the work of Anne Lyerly. In her powerful coauthored 2009 report on “risk and the pregnant body,” she identifies a number of key distortions that inform our risk-based perceptions and management of pregnancy. She describes medical intervention during pregnancy and birth as “Janus-faced,” insofar as there is disproportionate attention given to any possible fetal risk of intervention compared to maternal risk of nonintervention, while the management of birth tends toward medical intervention, regardless of the potential burdens to mother and fetus which such interventions might incur. Outside of the clinical context, she argues that there is a “better safe than sorry,” rather than evidence-based, attitude to lifestyle choices, such as diet and exercise. She suggests that medicalization and medical advice in this context may well stem more from gender-based ideas about “purity in pregnancy and control in birth,” as well as “moral standards of sacrifice applied to mothers” (p. 3ff.).

For both Lyerly and many others, it seems that gender stereotypes associated with “ideal motherhood” or “female sacrifice” play a role within medical proscription of ordinary practices during pregnancy and the pregnant or breastfeeding woman’s avoidance of legitimately prescribed medical treatment due to fears for the baby (McDonald et al., 2011). The medicalization of pregnancy and pregnant women leads to further concerns about erosion of female autonomy and equality, once matters of legal responsibility for choices that might affect the fetus are brought into consideration (Gonen, 1994). Some examples include “fetal protection” policies, which bar women of childbearing age from certain types of occupation (Gonen, 1994; Kenney, 1993), or prosecution of women for practices that may represent risk to the fetus. As Capron (1998, p. 33) argues, it would be difficult to limit the type of actions that could be prosecuted as “child endangerment” if such prosecutions were accepted: “failure to follow such advice [i.e. re drinking], or medical advice either to take or to refrain from taking prescription drugs or following other medical regimes, could thus lay the basis for a child endangerment prosecution if shown to have led to serious harm to a child.”

Similar concerns have been raised over the potentially deleterious consequences of blanket medicalization of other female life stages, such as menopause or menstruation (Kaufert and Lock, 1997; Mackey, 2007; Meyer, 2001). “Women’s health becomes dominated by ‘reproductive biology.’ Not only does

this lead to excessive medicalization of reproductive biology, but may also lead to other aspects of women's health being overlooked" (Rogers, 2004, p. 55).

While medical advances in fields such as obstetrics may have made significant improvements to the health of mothers, babies, and women in general, it seems clear that there are dangers when legitimate medical problems and treatments concerning female life-stages give rise to their blanket medicalization. Medicalization of female reproductive phenomena may be another way of imposing "otherness" on the female sex, so with the ordinary aspects of female sexual biology rendered "abnormal" or "alien" through the process of pathologization. There seems to be a growing need for medicine to differentiate between ordinary female biological changes, which are part of ordinary human function, even if distinct from male biology, and legitimate cases of medical dysfunction in relation to such changes, which warrant medical intervention.

The Male Norm within Evidence-based Medicine

With the development of EBM, an increasing level of attention has been given to the way in which women are excluded or deprioritized within research at all stages (Goldenberg, 2006; Kim et al., 2010; Zucker and Beery, 2010). Rogers (2004, p. 60) writes:

The gender bias amongst participants in clinical trials is well known. Women have been excluded from research for many years, for a variety of reasons including the alleged need for homogenous populations, the fear of harms to pregnant women, the cost of including women, and the purported difficulty of recruiting women.

While the exclusion of women from randomized controlled trials (RCTs) is often explained, for example, in terms of the risks of research for women of childbearing age, such reasons are insufficient to account for or to justify the lack of focus on women within EBM and the potential disadvantages this brings to women. While many of the arguments focus on the dangers of a research participant being or becoming pregnant, it is increasingly argued that even this is problematic for a number of reasons, such as the need to find effective treatment of pregnant women (Lyerly et al., 2008). While international ethical guidelines stipulate that pregnant women are eligible for participation in biomedical research, they are excluded, even though information surrounding safe and effective treatments cannot simply be extrapolated from "data on men and non-pregnant women." "This is ethically and medically unacceptable," according to Baylis (2010, p. 689), "for two reasons: pregnant women get sick and sick women get pregnant. Patients who happen to be pregnant are as entitled as

anyone else to safe and effective treatments, yet they are denied this and will be for as long as pregnant women are excluded from clinical studies.”

As Rogers (2004) points out, EBM can confer certain advantages on women, such as providing evidence of the dangers of overuse of episiotomy or a lack of evidence for fetal monitoring benefits. Nevertheless, EBM is seen as the gold-standard of current medical practice, creating the most statistically significant, objective, and generalizable research, despite the underrepresentation of women. Even phenomena such as the exclusion of the elderly from clinical trials could be seen to “further gender bias,” insofar as women “form a greater proportion of the elderly population” (p. 62). Moreover, gender data are not routinely included within research, making it difficult to gather information about gender bias (Holdcroft, 2007; Rogers, 2004).

If, as suggested earlier, the biological male is viewed as the norm within clinical medicine, we can see how such exclusion or deemphasis of women might occur. Within this framework, it is likely that disease will be seen as the dysfunction of male biology. While ordinary aspects of female biology may then be pathologized, the primary model of disease itself will be male-orientated. Female particularities may well then come to be seen either as confounders within research, which distort a male-based understanding of how a medical intervention works, or as irrelevant, since there is an assumption that the male norm is straightforwardly generalizable to the female population in the most important respects. Rogers and Ballantyne (2008, p. 43) comment on the justifications given for excluding females from research: “The combination of these arguments demonstrates the traditional and paradoxical assumption that female hormones and other biological processes interfere with research to a sufficient degree to justify the exclusion of women, and yet males and females are homogeneous enough that research results from male studies can be generalized to women.”

Strangely enough, we might even see this as suggesting a return to a “one-sex” type-model, in which there is one sex, typified by men, and shared by women. Female-specific differences are then interpreted either as irrelevant or as distortions of the male model, which will confuse scientific accounts.

Support for the idea of a dominant biological male norm within medicine can be found by considering examples of gender bias within EBM. Most well documented, perhaps, is the bias toward selection of male research participants. Despite regulations in a number of countries mandating inclusion of female participants, women continue to be underrepresented (Raz and Miller, 2012; Regitz-Zagrosek and Seeland, 2012). At the same time, as Raz and Miller (2012, p. 131) point out: “Around the globe, failure to understand and study female biology in medicine has resulted in higher mortality and co-morbidities in women.” Sociocultural factors may also contribute, such as the underrepresentation of women among those setting research agendas,

greater poverty, and lower social standing of women (Goldenberg, 2006; Holdcroft, 2007; Rogers, 2004). The problems lie not simply with participant selection, but also within failure to include or analyze gender data within research (Kim et al., 2010).

As we have seen an apparent gender bias within research appears to stem from some of the following assumptions:

- Medical interventions that work for men will work equally well or in the same way for women.
- Gender-based differences in symptoms and treatment are not significant elements within understanding health conditions and, thus, gender-based studies and gender data in research results are not a necessary element of good research practice.
- The need to protect pregnant women or even women of childbearing age from the risk of medical intervention is of primary importance, even when outweighed by factors such as the greater risk presented by lack of research on this group or the role of and the actual degree of risk from the trial and female rights and responsibility in ensuring that pregnancy is avoided during a trial in which a woman chooses to take part.
- The scientific validity of research agenda is unaffected by disproportionate representation of one gender among determining such agenda.

The notion that gender biases may play a role in the diagnosis and treatment of heart disease has already been discussed earlier. The context of research into heart disease also provides a useful example of where an overreliance on male biology can lead to gender-based problems within EBM, which appear to reflect some of the problematic assumptions laid out earlier.

A number of researchers have questioned the notion that male-based research is sufficient for understanding how women are affected by heart disease and point out the significantly higher representation of male participants or all-male studies within heart-disease research (Leuzzi et al., 2010; Regitz-Zagrosek and Seeland, 2012; Rogers and Ballantyne, 2008). For example, one 2012 paper discusses how women are underrepresented in RCTs for heart failure and notes that “although the population estimate among patients with Heart Failure in the United States is about 50%, only 17% to 23% of HF randomized controlled trials enrolled women” (Shin et al., 2012, p. 172). It goes on to suggest that more women need to be included in order better to identify and understand “sex-specific differences.” Moreover, male bias appears to pervade every stage of the research process and even in the first stage of trials, “most research is done in male animals,” despite the fact that “significant differences exist in the outcomes of male and female mice in models of myocardial infarction, pressure

overload and genetic cardiomyopathies that are often not even considered by the researchers” (Regitz-Zagrosek and Seeland, 2012, p. 15).

Despite the widely acknowledged differences between how men and women are affected by heart disease, there is a lack of gender-specific research and research that provides gender data or analysis by gender (Rogers, 2004, p. 57; Shin et al., 2012). A male “norm” still appears to dominate. A 2010 article in *Nature*, for example, charges that differences between female and male experience of cardiovascular disease are “particularly acute.” Nevertheless, typical early symptoms for women are “considered to be atypical because diagnostic standards were mainly established from research on men,” while some of the diagnostic tests are also effective at detection in women (Kim et al., 2010, p. 688). As is the case more generally in medicine, heart disease within pregnancy or, as relating to other aspects of women’s reproductive health, is underresearched. A clear lack of research into treatment and mechanisms of “pregnancy-related cardiovascular and metabolic and other diseases” has been identified, and there is also a need for research that acknowledges menopause-specific factors (Regitz-Zagrosek and Seeland, 2012; Shin et al., 2012).

Although it is accepted that further research is needed, it has been suggested that the proportionately greater representation of men among those who are influential in determining research agendas may be one factor that leads to a greater focus on male health than female within research (Rogers, 2004, p. 60). It is not simply greater male representation within the scientific community that might lead to such problems, but also the EBM model itself. As Rogers, for example, has pointed out, EBM is “by and large located within a biomedical model in which identifiable causes lead to disease outcomes” and “a research agenda in which the immediate and identifiable causes are investigated and treated” (p. 68). Women globally are more likely to suffer from poverty and discrimination, all of which may have a major causal role in producing health inequalities and leading to illnesses such as heart disease (Chow and Patel, 2012). However, there is little room within EBM for consideration of such socio-economic factors, which are prevalent and may have major effects on health, but remain extremely difficult to measure, especially with a current EBM-type framework (Rogers, 2004, p. 67ff.).

Questioning the Biological Sex Divide—The Intersection of Sex and Gender?

It appears that many of the current problems and imbalances surrounding gender within medical research and treatment may stem from assumptions of male biology as the norm. Both within medical research in general and more specific contexts, such as heart disease, there are widespread calls for research

that specifically targets gender-based differences in symptoms, presentation, and for treatment, which includes consideration of sociocultural factors. In addition, when it comes to reproductive biology, there is a general tendency to see female reproductive biology as a deviation from a healthy norm, leading to excessive general medicalization of pregnancy for example. Ironically, this appears to have the consequence that actual medical dysfunction within reproduction is inadequately provided for within healthcare and, particularly, within research. Here, it appears that a medicalization of pregnancy has led to exclusion of pregnant or potentially pregnant women from research, insofar as they are viewed as either an “at-risk” population or a population whose biological abnormalities may skew research findings.

If we stick to the conventional sex/gender divide, such phenomenon may seem hard to explain. Female biological differences are simply biomedical facts and research protocols such as EBM should therefore be more than adequate for taking such differences into account. However, medical data and phenomena do not exist in some type of biomedical vacuum. Sociocultural factors are inextricably tied to factors such as concepts of health and disease, selection of data, and research agenda; and it is here that we can see the limitations of a sex/gender distinction. While certain aspects of male and female biology may be biomedical “facts” or objective phenomena, how we, as humans, approach such biological phenomena is rooted in sociocultural context, attitudes, and the construction of norms.

Phenomenological Embodiment—A Way Forward

The Problems of the Sex/gender Distinction, in Theory and in Practice

The sex/gender distinction suggests that, as well as gender differences based on social and cultural attitudes and construction, there are also objective physiological differences between men and women. It is these latter sex-based differences that are assumed to be of relevance to medicine, rooted as it is in the scientific and objective analysis of medical symptoms and data.

Nevertheless, the limitations of the sex/gender distinction, as identified within a more general context, seem more relevant to medicine than one might at first suppose. Even within our basic concepts of health and illness, it is undeniable that normative factors play an important role in terms of determining which symptoms and phenomena are to be deemed healthy or unhealthy. It appears that sex-based differences are no exception. On the one hand, certain characteristics associated with a particular gender are invested with a level of realism, which means that they influence medical diagnosis. Meanwhile, the

dominance of the male model within society means that male biological phenomena are understood as the “real” biological norm.

We seem to have a situation where the dominant biomedical model rests on the supposition that it concerns itself with the natural and objective biological realities of medical data, including sex-based differences. However, there is a failure to recognize that clinicians, researcher, and patients are situated within a sociocultural context, which is bound up with its own gender-based assumptions even at the level of determining what constitutes biological realities.

Phenomenology, Gender, and Embodiment

It appears that the sex/gender distinction is subject to the same limitations within the medical context as elsewhere, and that there is need for a model that can transcend the problems engendered by this distinction. The difference between sex and gender rests on a distinction between objective biological “facts” and subjective socioculturally determined attitudes. Within philosophy of medicine, one influential way of challenging this subjective/objective, perceptual/biological distinction is to adopt a phenomenological approach.

Phenomenology gives epistemological primacy to first-hand experience of phenomena. Between us, and through a process of intersubjectivity, we arrive at collective accounts. However, these are always mediated through our own first-hand experience and the notion that some attainable and essential reality beyond such experience is rejected. In as much as one can generalize about phenomenology, the phenomenological project is one of trying to come as close as one can to the raw personal experience of phenomena and to free oneself from the theoretical standpoints, which have become entrenched within us and which we use to filter our experiences (Gergel, 2012). Nevertheless, as Heidegger wrote, we are inextricably situated within our own temporal and cultural contexts, and our experiences will be filtered through such contexts. This was then taken further by Merleau-Ponty, who saw experience as “embodied” and rejected the notion that we have some purely mental level of contemplation or experience. Not only is our experience of phenomena enmeshed in our sociocultural context, this experience is also enmeshed within our physical body.

Although the potential value of embodiment is a way of approaching gender issues within medicine, it has been argued that phenomenological approaches to embodiment are distinct from other approaches and lack the gender and social-structural dimensions found elsewhere (Hammarström et al., 2014). It may be true that Merleau-Ponty himself was not directly engaged with gender-specific issues and focused more heavily on breaking down the internal mind/body divide, rather than its social situatedness. However, Merleau-Ponty’s individual is seen as firmly embedded within their sociocultural context and

the space for gender considerations within the framework he suggests are clearly evidenced by the subsequent thinkers who concentrate more directly on such matters.

For de Beauvoir, embodiment and the integral connection between mind, body, and social context was a way of achieving a fuller explanation of the disadvantages women have experienced through the ages. For her successors, the phenomena of embodiment was not only a way of understanding such disadvantages, but also challenging the dominance of the male model in a way that incorporated all elements of female experience (Mikkola, 2012).

However, rather than seeing gendered embodiment as necessarily entailing positive or negative consequences in itself, we might productively view it here as a notion with a strong explanatory value when considering issues of sex and gender within medicine. Rather than trying to deal with the seemingly intractable problems of attempting to explain medical phenomena either in terms of detached sex-based biological data or purely gender-based phenomena, the notion of embodiment suggests that such distinctions are based on a flawed separation of mind and body and of person from environment.

The complexity of understanding the role that gender differences play, for example, in heart disease leads to a number of questions. Do women present with different symptoms from men, or is it just the case that the same symptoms are judged differently? Are women's judgments concerning the abnormality of their own physiological experiences more readily questioned than men's? If female symptomatology is different, is this because of internal biological phenomena, or is this due to the external influence of gender-based models of behavior? If heart disease is underresearched in women, is this due to women's attitude to research participation, men's attitude to the importance of female inclusion or male bias in setting a more male-orientated research agenda? Do male and female differences in pathology of heart disease and receptivity to treatment or diagnostic tests mean that more emphasis should be given to gender-specific or gender-sensitive research?

Phenomenological embodiment suggests that such questions are interrelated. If we are truly to understand male/female differences in relation to health problems, such as heart disease, embodiment would allow us not only to see the relevance of all these questions, but also to provide a basis for their interrelation, which might give a more comprehensive explanation of the phenomena. If we can develop some type of embodiment-based framework for exploring medical phenomena, might this help us reach a clearer understanding of the essential interrelationship of all elements, both internal and external, bodily and psychological, of the experience of health and illness? It is beyond the scope of this chapter to develop such a framework. Nevertheless, if it is the case that many gender-related difficulties within medicine may stem from positing

too rigid a separation between such elements, it seems that such a framework may have important explanatory potential within medicine.

References

- Aguilar, M. D., Lázaro, P., Fitch, K., and Luengo, S. (2002). Gender differences in clinical status at time of coronary revascularisation in Spain. *J. Epidemiol. Community Health* 56: 555–59.
- Ahima, R. S. and Lazar, M. A. (2013). The health risk of obesity—better metrics imperative. *Science* 341: 856–58.
- Baylis, F. (2010). Pregnant women deserve better. *Nature* 465: 689–90.
- Beauvoir, S. de (2011). *The Second Sex*. New York: Vintage Books.
- Bess, C. (1995). Gender bias in health: A life or death issue for woman with coronary heart disease. *Hastings Women's Law J.* 6: 41.
- Boorse, C. (1975). On the distinction between disease and illness. *Philos. Public Aff.* 5: 49–68.
- Boorse, C. (1977). Health as a theoretical concept. *Philos. Sci.* 44: 542–73.
- Brezinka, V. (1995). Gender bias in diagnosis and treatment of women with coronary heart disease: A review. *Z. Für Kardiologie* 84: 99–104.
- Butler, J. (2006). *Gender Trouble: Feminism and the Subversion of Identity*, new edition. New York: Routledge.
- Capron, A. M. (1998). Punishing mothers. *Hastings Cent. Rep.* 28: 31–33.
- Carel, H. (2008). *Illness*. Durham, UK: Routledge.
- Cawley, J., and Burkhauser, R. V. (2006). Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research (Working Paper No. 12291). National Bureau of Economic Research.
- Chang, A. M., Mumma, B., Sease, K. L., Robey, J. L., Shofer, F. S., and Hollander, J. E. (2007). Gender bias in cardiovascular testing persists after adjustment for presenting characteristics and cardiac risk. *Acad. Emerg. Med. Off. J. Soc. Acad. Emerg. Med.* 14: 599–605.
- Chiaromonte, G. R., and Friend, R. (2006). Medical students' and residents' gender bias in the diagnosis, treatment, and interpretation of coronary heart disease symptoms. *Health Psychol. Off. J. Div. Health Psychol. Am. Psychol. Assoc.* 25: 255–66.
- Chow, C. K., and Patel, A. A. (2012). Women's cardiovascular health in India. *Heart Br. Card. Soc.* 98: 456–59.
- Crossley, M. L. (2007). Childbirth, complications and the illusion of “choice”: A case study. *Fem. Psychol.* 17: 543–63.
- Demontis, R., Pisu, S., Pintor, M., and D'aloja, E. (2011). Cesarean section without clinical indication versus vaginal delivery as a paradigmatic model in the discourse of medical setting decisions. *J. Matern.-Fetal Neonatal Med. Off. J. Eur. Assoc. Perinat. Med. Fed. Asia Ocean. Perinat. Soc. Int. Soc. Perinat. Obstet.* 24: 1470–75.
- Engelhardt, H. T. (1996). *The Foundations of Bioethics*. Oxford University Press.
- Fausto-Sterling, A. (2005). The problem with sex/gender and nature/nurture. In *Debating Biology*, eds. G. Bendelow, L. Birke, and S. Williams. Routledge.
- Gergel, T. L. (2012). Medicine and the individual: Is phenomenology the answer?: Medicine and the individual. *J. Eval. Clin. Pract.* 18: 1102–109.
- Goldenberg, M. J. (2006). On evidence and evidence-based medicine: Lessons from the philosophy of science. *Soc. Sci. Med.*, Part Special Issue: Gift Horse or Trojan Horse? Social Science Perspectives on Evidence-Based Health Care Part Special Issue: Gift

- Horse or Trojan Horse? Social Science Perspectives on Evidence-Based Health Care 62: 2621–32.
- Gonen, J. S. (1994). Women's rights vs. "fetal rights." *Women Polit.* 13: 175–90.
- Gould, C. C., and Wartofsky, M. W. (1976). *Women and philosophy: Toward a theory of liberation.* Putnam.
- Greil, A. L., and McQuillan, J. (2010). "Trying" times: Medicalization, intent, and ambiguity in the definition of infertility. *Med. Anthropol. Q.* 24: 137–56.
- Hamilton, R. P. (2010). The concept of health: Beyond normativism and naturalism. *J. Eval. Clin. Pract.* 16: 323–29.
- Hammarström, A., Johansson, K., Annandale, E., Ahlgren, C., Aléx, L., Christianson, M., Elwér, S., Eriksson, C., Fjellman-Wiklund, A., Gilenstam, K., Gustafsson, P. E., Harryson, L., Lehti, A., Stenberg, G., and Verdonk, P. (2014). Central gender theoretical concepts in health research: the state of the art. *J. Epidemiol. Community Health* 68: 185–90.
- Hartmann, K., Viswanathan, M., Palmieri, R., Gartlehner, G., Thorp, J., and Lohr, K. N. (2005). Outcomes of routine episiotomy: A systematic review. *JAMA* 293: 2141–48.
- Hochleitner, M. (2000). Coronary heart disease: Sexual bias in referral for coronary angiogram. How does it work in a state-run health system? *J. Womens Health Gen. Based Med.* 9: 29–34.
- Holdcroft, A. (2007). Gender bias in research: How does it affect evidence based medicine? *J. R. Soc. Med.* 100: 2–3.
- Hsich, E. M., Starling, R. C., Blackstone, E. H., Singh, T. P., Young, J. B., Gorodeski, E. Z., Taylor, D. O., and Schold, J. D. (2014). Does the UNOS heart transplant allocation system favor men over women? *JACC Heart Fail.* 2: 347–55.
- Jaggar, A. (1983). Human biology in feminist theory: Sexual equality reconsidered. In *Beyond Domination: New Perspectives on Women and Philosophy*, ed. C. C. Gould. Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Jibrán, R., Khan, J. A., and Hoye, A. (2010). Gender disparity in patients undergoing percutaneous coronary intervention for acute coronary syndromes—does it still exist in contemporary practice? *Ann. Acad. Med. Singapore* 39: 173–78.
- Jones, S., Howard, L., and Thornicroft, G. (2008). "Diagnostic overshadowing": Worse physical health care for people with mental illness. *Acta Psychiatr. Scand.* 118: 169–71.
- Kalish, R. B., McCullough, L. B., and Chervenak, F. A. (2008). Patient choice cesarean delivery: Ethical issues. *Curr. Opin. Obstet. Gynecol.* 20: 116–19.
- Katz, J. D., Mamyrova, G., Guzhva, O., and Furmark, L. (2010). Gender bias in diagnosing fibromyalgia. *Gen. Med.* 7: 19–27.
- Katz, J. D., Seaman, R., and Diamond, S. (2008). Exposing gender bias in medical taxonomy: Toward embracing a gender difference without disenfranchising women. *Women's Health Issues* 18: 151–54.
- Kaufert, P. A., and Lock, M. (1997). Medicalization of women's third age. *J. Psychosom. Obstet. Gynaecol.* 18: 81–86.
- Kenney, S. J. (1993). *For Whose Protection?: Reproductive Hazards and Exclusionary Policies in the United States and Britain.* Ann Arbor: University of Michigan Press.
- Kim, A. M., Tingen, C. M., and Woodruff, T. K. (2010). Sex bias in trials and treatment must end. *Nature* 465: 688–89.
- Kingma, E. (2007). What is it to be healthy? *Analysis* 67: 128–33.
- Klonoff, E. A., and Landrine, H. (1996). *Preventing Misdiagnosis of Women: A Guide to Physical Disorders That Have Psychiatric Symptoms.* SAGE Publications.
- Kobashigawa, J. A. (2014). U.S. donor heart allocation bias for men over women? A closer look. *JACC Heart Fail.* 2: 356–57.
- Laqueur, T. (1992). *Making Sex: Body and Gender from the Greeks to Freud*, new edition. Cambridge, MA: Harvard University Press.

- Leuzzi, C., Sangiorgi, G. M., and Modena, M. G. (2010). Gender-specific aspects in the clinical presentation of cardiovascular disease. *Fundam. Clin. Pharmacol.* 24: 711–17.
- Lyerly, A. D., Little, M. O., and Faden, R. (2008). The second wave: Toward responsible inclusion of pregnant women in research. *Int. J. Fem. Approaches Bioeth.* 1: 5–22.
- Lyerly, A. D., Mitchell, L. M., Armstrong, E. M., Harris, L. H., Kukla, R., Kuppermann, M., and Little, M. O. (2009). Risk and the pregnant body. *Hastings Cent. Rep.* 39: 34–42.
- Mackey, S. (2007). Women's experience of being well during peri-menopause: A phenomenological study. *Contemp. Nurse* 25: 39–49.
- McDonald, K., Amir, L. H., and Davey, M.-A. (2011). Maternal bodies and medicines: A commentary on risk and decision-making of pregnant and breastfeeding women and health professionals. *BMC Public Health* 11(Suppl 5): S5.
- Merleau-Ponty, M. (2002). *Phenomenology of Perception: An Introduction*, 2nd edition. London: Routledge.
- Meyer, V. F. (2001). The medicalization of menopause: Critique and consequences. *Int. J. Health Serv. Plan. Adm. Eval.* 31: 769–92.
- Micale, M. S. (2009). *Hysterical Men: The Hidden History of Male Nervous Illness*. Harvard University Press.
- Mikkola, M. (2006). Elizabeth Spelman, gender realism, and women. *Hypatia* 21: 77–96.
- Mikkola, M. (2012). Feminist perspectives on sex and gender. *Stanf. Encycl. Philos.*
- Mullin, A. (2005). *Reconceiving Pregnancy and Childcare: Ethics, Experience, and Reproductive Labor*. New York: Cambridge University Press.
- Munch, S. (2004). Gender-biased diagnosing of women's medical complaints: Contributions of feminist thought, 1970–1995. *Women's Health* 40: 101–21.
- Munson, R. (1981). Why medicine cannot be a science. *J. Med. Philos.* 6: 183–208.
- Nante, N., Messina, G., Cecchini, M., Bertetto, O., Moirano, F., and McKee, M. (2009). Sex differences in use of interventional cardiology persist after risk adjustment. *J. Epidemiol. Community Health* 63: 203–208.
- Nash, M. (2013). Diagnostic overshadowing: A potential barrier to physical health care for mental health service users. *Ment. Health Pract.* 17: 22–26.
- Newman-Toker, D. E., Moy, E., Valente, E., Coffey, R., and Hines, A. L. (2014). Missed diagnosis of stroke in the emergency department: A cross-sectional analysis of a large population-based sample. *Diagnosis* 1: 155–66.
- Ornish, D. (2002). Statins and the soul of medicine. *Am. J. Cardiol.* 89: 1286–90.
- Pietras, J., and Taiwo, B. F. (2012). Episiotomy in modern obstetrics—necessity versus malpractice. *Adv. Clin. Exp. Med. Off. Organ Wroclaw Med. Univ.* 21: 545–50.
- Raz, L., and Miller, V. M. (2012). Considerations of sex and gender differences in preclinical and clinical trials. *Handb. Exp. Pharmacol.* 127–47.
- Regitz-Zagrosek, V., and Seeland, U. (2012). Sex and gender differences in clinical medicine. *Handb. Exp. Pharmacol.* 3–22.
- Rogers, W. (2004). Evidence-based medicine and women: Do the principles and practice of EBM further women's health? *Bioethics* 18: 50–71.
- Rogers, W., and Ballantyne, A. (2008). When is sex-specific research appropriate? *Int. J. Fem. Approaches Bioeth.* 1: 36–57.
- Saunders-Pullman, R., Wang, C., Stanley, K., and Bressman, S. B. (2011). Diagnosis and referral delay in women with Parkinson's disease. *Gen. Med.* 8: 209–17.
- Schaffner, K. F. (1993). *Discovery and Explanation in Biology and Medicine*. University of Chicago Press.
- Shin, J. J., Hamad, E., Murthy, S., and Piña, I. L. (2012). Heart failure in women. *Clin. Cardiol.* 35: 172–77.
- Sinatra, S. T., Teter, B. B., Bowden, J., Houston, M. C., and Martinez-Gonzalez, M. A. (2014). The saturated fat, cholesterol, and statin controversy: A commentary. *J. Am. Coll. Nutr.* 33: 79–88.

- Smith, M. A., Lisabeth, L. D., Brown, D. L., and Morgenstern, L. B. (2005). Gender comparisons of diagnostic evaluation for ischemic stroke patients. *Neurology* 65: 855–58.
- Spelman, E. V. (1988). *Inessential Woman: Problems of Exclusion in Feminist Thought*. Beacon Press.
- Szasz, T. S. (1991). *Ideology and Insanity: Essays on the Psychiatric Dehumanization of Man.*, Syracuse, NY: Syracuse Univ Press.
- Szasz, T. S. (2010). *The Myth of Mental Illness: Foundations of a Theory of Personal Conduct*, anniversary edition. New York: Harper Perennial.
- Tasca, C., Rapetti, M., Carta, M. G., and Fadda, B. (2012). Women and hysteria in the history of mental health. *Clin. Pract. Epidemiol. Ment. Health CP EMH* 8: 110–19.
- WHO, 2015. Gender Disparities in Mental Health. World Health Organization: Department of Mental Health and Substance Dependence.
- Wilcox, V. L. (1992). Effects of patients' age, gender, and depression on medical students' beliefs, attitudes, intentions, and behavior. *J. Appl. Soc. Psychol.* 22: 1093–110.
- Zhang, B., Zhang, W., Huang, R.-C., Zhang, Y., Liu, J., Zheng, Z.-G., Jiang, D.-M., Sun, Y.-J., Ren, L.-N., Zhou, X.-C., and Qi, G.-X. (2013). Gender disparity in early death after ST-elevation myocardial infarction. *Chin. Med. J. (Engl.)* 126: 3481–85.
- Zosuls, K. M., Miller, C. F., Ruble, D. N., Martin, C. L., and Fabes, R. A. (2011). Gender development research in sex roles: historical trends and future directions. *Sex Roles* 64: 826–42.
- Zucker, I., and Beery, A. K. (2010). Males still dominate animal studies. *Nature* 465: 690.