

Gender as a Health Determinant and Implications for Health Education

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Gender is a health determinant, but gender itself is influenced, in part, by biological and psychological variables. Understanding gender's influence on health therefore requires an understanding of the determinants of the construct *gender*. A review of certain gender determinants is presented. The authors consider the modifiability of these determinants and present recommendations about which of these determinants should be targeted for health promotion and policy creation activities. In concluding, they argue that gender is a multi-determined construct that encompasses many factors that may be modifiable through intervention, and consideration of all of these factors should be vigorously pursued.

Keywords: *gender; theory; determinants; policy; review*

Gender is a multifaceted construct. It is composed of social roles, behaviors, values, attitudes, and social environmental factors, as well as biological, physical, and hormonal attributes, yet the terms *gender* and *sex* are often used interchangeably, as though psychosocial and biological attributes inevitably covary. This conflation of terms has led to debates among scientists about how to operationalize these constructs (Deaux,

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1993; Gentile, 1993). One of the interesting consequences of this conflation of biological sex and social/cultural gender is that where gender predicts health outcomes, biology is often presumed to be inevitably at play. Moreover, if biology is accepted as solely affecting the health differences between men and women, disparity reduction (political, social, and economic) is ignored. For example, gender is a powerful predictor of premature cardiovascular morbidity and mortality (Kannel, Hjortland, McNamara, & Gordon, 1976; Stoney & Engebretson, 1994). Although men die earlier than women do after acute myocardial infarction (Rieves, Wright, Gupta, & Shacter, 2000), part of the predictive power of gender to heart disease, rather than sex, may be lifestyle choices, attitudes toward health, and social-support resources, as opposed to only those determinants associated with biological sex. These first determinants are not measured by the single item question, "Are you male or female?"

As noted by May Cohen (1998) in her call for a framework for women's health within health education, gender itself is "a key determinant of health" (p. 189); therefore, "a broader understanding of the meaning of women's health and its determinants . . . is essential" (p. 194). The present article focuses on conceptual, theoretical, and methodological issues that must be examined to better understand gender and its relation to health. At the conceptual level, it is argued that gender is a multidetermined construct and needs to be conceptualized and measured as such. At the theoretical level, the possible causal relations among the determinants of gender and health are examined, and the differing patterns of empirical results that help determine the likelihood of causality are presented. At the methodological level, some constructs that should be employed in health surveys to disentangle the causal possibilities at play in predicting health are presented. Finally, a gender-focused determinants-of-health model that can be used by researchers and policy makers is described.

This new, expanded health-determinants model highlights the modifiability of some determinants of gender, and the differing ways that determinants can be related to health, to elucidate the complex role that gender likely plays in health outcomes. Perceiving gender "determinants" as modifiable will empower health educators and researchers to identify, apply, and evaluate gender-sensitive strategies to promote well-being among their clients. For example, public health campaigns that incorporate expectations about power dynamics in condom use within heterosexual couples may be more likely to influence health behaviors than those that do not (Doyal, 2002). Programs that consider and address gender role-related barriers (e.g., child and/or elder care responsibilities) to accessing health care resources such as substance abuse treatment may also have better chances of improving health services access than those that ignore these modifiable determinants (Strobino, Grason, & Minkovitz, 2002).

CONSIDERING GENDER AS A MULTIDIMENSIONAL CONSTRUCT

Sex differences exist in both morbidity and mortality outcomes (U.S. Department of Health and Human Services, 1997). In Western society, women tend to report more physical illness, more psychological distress, and more psychiatric symptoms than do men (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Waldron, 1982), yet women live longer than men. Many assume that these sex differences exist across time and culture and consistently and solely have biological causes. However, the sex difference in mortality is greater, lesser, or even reversed, depending on what culture is examined. For example, the sex difference in cancer incidence is influenced by cultural and

socioeconomic factors as reflected in rates of female versus male disadvantage for cancer incidence and life expectancy within different countries (Benigni, 2003). This suggests that sex differences in morbidity and mortality are not determined exclusively by biology.

Even when a sex difference is consistently found—as in the case of depression—biology alone cannot provide a complete explanation (Hankin & Abramson, 2001; Piccinelli & Wilkinson, 2000). To fully explain sex differences in health, more than biological determinants need to be considered. Psychological, social, cultural, educational, and economic variables differentiate women and men, as well as predict health outcomes. One such determinant under investigation is the gender of the person (Kaufert, 1996; Maccoby & Jacklin, 1974). What is *gender*? *Gender* has been used to refer to attributes, characteristics, stereotypes, social environments, as well as genetic status. This type of multifaceted definition does not clarify the relation of gender to health. Thus, a more precise and specific definition of the term is necessary.

Widom (1984) suggested dividing the study of gender differences into biological, psychological, and social components. Within this manuscript, gender differences examined at the biological level will be referred to as *biological sex*. Next, gender differences can be investigated at a psychological level (e.g., personality, social support, coping skills, individual differences in health practices) known herein as *gendered selves*. Finally, gender differences can be examined at a social level and/or cultural level (e.g., shared beliefs about what constitute appropriate behaviors and cultural/social/economic environments characteristic for each sex), represented by the term *social bases of gender*. Because this last level has received the most attention in the literature (e.g., for general health, see *Social Science & Medicine* special issue, titled “Social and Economic Patterning of Women’s Health in a Changing World” [Arber & Khlat, 2002]; for specific health issues such as coronary heart disease, see Fleury, Keller, & Murdaugh [2000] or McKinlay, Potter, & Feldman [1996]), we restrict our discussion to the less often considered psychological components and contrast this briefly with the biological components.

These latter two dimensions of gender differences are not independent of one another; psychological bases of gender may interact with biological sex to influence health outcomes. For example, being female may not directly cause passivity and emotional expressivity, but being shorter than male children when children are roughhousing on a playground may lead to a tendency to withdraw and be passive when interpersonally aggressive situations arise. Chronic passivity, in turn, has been linked to cancer incidence, albeit with some associated controversy (Eysenck, 1998). Interventions aimed at altering adulthood passivity to change cancer risk appear difficult. Increasing the monitoring of childhood aggressive behavior in school (e.g., the Conduct Problems Prevention Research Group, 2002) may be more promising in protecting potential child victims, and diminished exposure to bullying or aggression may in turn lead these victims to be less passive in adulthood. Making this distinction between psychological and biological factors that influence sex differences in health outcomes informs reconsideration of possible intervention targets.

Biological Sex

Some research supports the supposition that a biological sex indicator is “causing” a health outcome. For example, according to a review of gender differences in depression (Piccinelli & Wilkinson, 2000), a multitude of possible biological determining factors are suggested as causal in the higher incidence of depression among women, including genetic factors, gonadal hormones, the adrenal axis, and neurotransmitter systems. For

depression, a pattern of familial risk consistent with a genetic explanation has not been found, suggesting that sex-linked genes are not solely responsible for the sex differential in depression rates. Gonadal hormones could represent a risk as females' depression rates and puberty are positively correlated. This risk association is confounded, however, by findings that female puberty onset is correlated with increased life stress as well. Various reviews regarding the role of the adrenal axis (Weiss, Longhurst, & Mazure, 1999) and the role of neurotransmitter systems (Kuehner, 2003) in causing sex differences in depression rates are current examples of specific biological determinants that may elucidate sex differences.

In short, where adverse health outcomes are more prevalent in women, there is not sufficient support for the biological-determinant hypothesis by referring back to the empirical finding that women are at increased risk for a specific health outcome, such as depression. Indeed, this is a tautological argument. There are clearly current findings where biological factors determine a sex difference in disease prevalence. We argue that pursuing these specific biological determinants rather than accepting a global perception that a sex difference exists will be more productive in terms of furthering science, understanding etiology, and testing promising interventions.

Gendered Selves

To understand the possible causal role that gendered psychological and social attributes may play in health outcomes, it is necessary to define the types of constructs that fall within this category. This facet of gender has often been neglected in health education research, and indicators of this component are missing from many population health studies. The five major areas that we will explore for their contribution to gender differentials in health outcomes are personality, social support, coping skills, attitudes/values, and behaviors.

Personality. Several personality variables have been identified as potential predictors of health (Smith & Ruiz, 2002; Wiebe & Smith, 1997). Furthermore, there are certain personality variables, such as optimism, anger, and hostility, that predict health and have significant gender differences (e.g., Stoney & Engebretson, 1994). Personality constructs have been found to predict responses to being ill, adherence to regimens aimed at alleviating suffering, and the onset of physical illness itself (Wiebe & Smith, 1997). Personality has been hypothesized to influence health differences in three ways: cognitive appraisal of the health event, the choice of health behaviors and lifestyles, and physiological hyperresponsiveness to stress (Wiebe & Smith, 1997). *Personality* may seem immutable, but interventions targeting the toxic personality trait of hostility have resulted in changes in personality and health status (Gidron & Davidson, 1996; Gidron, Davidson, & Bata, 1999). Thus, aspects of personality can be viewed as modifiable health determinants.

Social Support. There is considerable evidence to suggest that social support influences health status, health behavior, and use of health services (e.g., House, Landis, & Umberson, 1988; Shumaker & Czajkowski, 1994). Social support is a complex construct encompassing diverse dimensions, including sources, types, and appraisal of social support, that should each be assessed. Social network characteristics (e.g., the number of people from whom an individual can draw different types of support) have been shown to positively influence the immune system and improve factors related to morbidity and mortality (for reviews, see Cohen & Herbert, 1996; Robles & Kiecolt-Glaser,

2003; Tennant, 1999). For example, higher marital adjustment (i.e., satisfaction, cohesion, consensus, affectional expression; Spanier, 1976) at baseline was associated with a decrease in left ventricular mass index in a 3-year longitudinal study of participants with mild hypertension (Baker et al., 2000).

Of critical importance, social support at the individual, family, or community level can be modified (Kawachi & Berkman, 2001). Research points to distinct differences in men and women's social support. Women have more confidants, are more likely to draw on emotional social-support resources, and are more often sought out to provide support (Fuhrer & Stansfeld, 2002). Thus, gender differences in sources, types, and appraisal of social support should be assessed in future research. Recent evidence from a population-based sample, for example, demonstrated that perceived support was protective or a buffer from experiencing a second myocardial infarction (MI) for post-MI men, but *not* for post-MI women (Nemirovsky, Haas, Marra, Gerin, & Davidson, 2002). When analyzing the entire cohort, it appeared that social support was protective of second MIs, but a gender analysis revealed that for women alone, self-reported perception of social support in this context (recovering from an MI) was actually detrimental. The large number of men in this cohort compared with the relatively few women in the post-MI sample resulted in this pattern of findings. This study, like others, must have improved representation of women to more fully address this question.

Coping Skills. Coping skills variables fall within the realm of gendered selves and are often overlooked in the interpretation of gender in differentiated health outcomes. Although the association between coping skills and health outcomes has received less research attention than the association between personality determinants and disease, several studies suggest a relationship between coping skills and quality of life, including adjustment to illness (Luecken & Compas, 2002; Wiebe & Christensen, 1996). Furthermore, it has been argued that to understand women's lives, one must understand both the stress and coping skills that are unique to the socialization of women (Tom, 1993). Coping skills are easily modifiable (Jones, Tanigawa, & Weiss, 2003), frequently differentiate men and women (Kristofferzon, Lofmark, & Carlsson, 2003), and are predictive of many physical and psychological health outcomes (Penley, Tomaka, & Wiebe, 2002). Although some have suggested that coping skills do not influence health outcomes as strongly as do other variables such as age, available resources, or illness severity (O'Neill & Morrow, 2001), this empirical question has largely been unaddressed. Moreover, many have argued that the assessment of coping skills remains inadequate (for a recent review, see Folkman & Moskowitz, 2004). For example, the results of one study suggested gender differences in coping may be related to gender stereotyped recall of coping strategies rather than actual personal utilization of strategies (Porter et al., 2000). Without sufficient assessment, the strength of this construct to predict outcomes remains unknown. Thus, coping skills may be an important health determinant to include in studies of gender and health.

Attitudes and Values. Next, there are a number of gendered attitudes and values that profoundly influence health. For example, the meaning individuals attach to health likely affects their general health satisfaction, their interaction (or lack thereof) with health professionals, and their use of alternative health services (e.g., Pittman, 1999). Indeed, according to a review of studies including women with chronic illness, women's understanding of whether they are sick or healthy will depend on their health meaning and attitudes (e.g., interpretation and management of symptoms; O'Neill & Morrow, 2001). Gender differences in symptom perception versus actual symptomatology, although

difficult to distinguish, may partially explain sex differences in health (Gijsbers van Wijk & Kolk, 1997).

Health-Related Behaviors. Several factors linked to gender, including vulnerability to violence, caregiving burden, and maladaptive health practices, influence health-related behaviors. Intimate partner violence against women and children, for example, can drastically affect health (e.g., chronic pain, gastrointestinal problems, sexually transmitted diseases, depression; Campbell, 2002). Sexual harassment also has adverse physical and mental health effects (Swanson, Piotrkowski, Keita, & Becker, 1997) but is infrequently assessed. Caregiving burden represents a major societal cost that women often bear to the detriment of their health (e.g., depression, anxiety, and diminished life satisfaction; Yee & Schulz, 2000) but again is frequently not assessed. Last, women's role as primary caregiver in the home often means that women sacrifice their own personal preventative health measures to improve those of other family members. For example, women are less likely to engage in regular physical exercise; this is detrimental because exercise can slow the natural degeneration process, such as reduction of bone density, that comes with ageing (Mittleman et al., 1995).

Thus, within the theme of gendered selves, there are a number of promising health determinants that (a) differentiate the sexes, (b) predict health, and (c) are modifiable. They help illuminate potential determining factors in the differing health outcomes among women and men.

TYPES OF GENDERED EFFECTS ON HEALTH

Determinants May Have Direct Health Effects

First, a determinant may have a direct effect on health (see Figure 1). In this case, there is a correlation between the determinant and the health outcome, and altering the determinant results in a corresponding alteration in the health outcome status. Randomized, controlled intervention studies aimed at altering the putative direct determinant are the gold standard for testing for this type of proposed effect. There are determinants linked to gender that likely directly affect specific outcomes. For example, anger has been found to directly trigger acute MI (Engebretson & Matthews, 1992), and women have fewer anger episodes than do men (Marcus, Dubbert, King, & Pinto, 1995).

Determinants May Have Indirect Health Effects

A determinant may indirectly affect a certain health outcome (see Figure 2). In this case, the effect of one determinant occurs through, or is *mediated by*, another determinant. Baron and Kenny (1986) suggested that the term *mediator model* be applied only to a variable that accounts for the relationship between a predictor and a dependent variable. Mediators thus shed light on why or how the relationship between two variables occurs and offer valuable insight into the manner in which a relation works. In the last example, knowing that hostility predicts early mortality and that men and women differ on hostility levels does not easily inform policy or program intervention options. Discovering that hostility causes increased smoking and that smoking has a direct causal impact on early mortality does lend more insight into the possible policy and program interventions that could ameliorate this health disparity—by targeting public health campaigns at smokers who are suspicious and cynical (correlates of hostility).

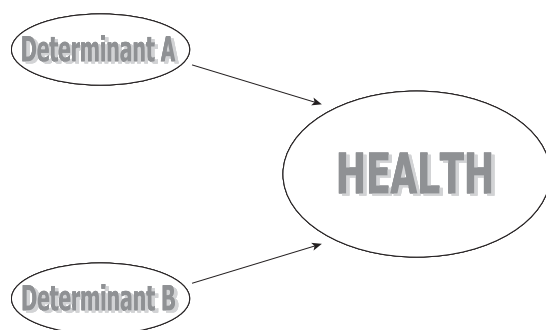


Figure 1. A determinant may have a direct effect on health.

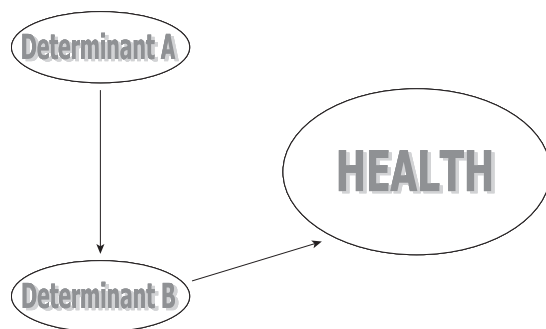


Figure 2. A determinant may indirectly affect a certain health outcome.

Determinants May Have Spurious Health Effects

Next, a determinant (A) may appear to have a relation to health, but when an unmeasured second determinant (B) is assessed, determinant (A) may no longer have a correlation with the health outcome, because determinant (B) causes both the health outcome and determinant (A) (see Figure 3). This pattern of results is very similar to those postulated for indirect effects, above; these two competing interpretations can be distinguished from each other through prospective data collection, causal path modeling (Cohen & Cohen, 1975; Pedhazur, 1982), and theoretical considerations of the reasonableness of the two competing explanations. For example, biological sex may robustly predict increased all-cause morbidity and so have the appearance of a direct effect. However, by assessing sexist attitudes, gender discrimination, or a number of the factors listed above, we might find that these are highly associated with biological sex and that they also robustly predict morbidity rates. Studies that vary the sex of the client through the use of vignettes (for a classic study, see Broverman, Broverman, Clarkson, Rosenkrantz, & Vogel, 1970) and request treatment plans by practitioners for the clients (Di Caccavo & Reid, 1998; Ross, Moffat, McConnachie, Gordon, & Wilson, 1999) best

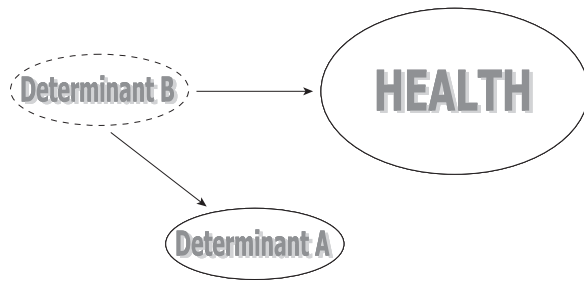


Figure 3. A determinant (A) may appear to have a relation to health, but when an unmeasured second determinant (B) is assessed, determinant (A) may no longer have a correlation with the health outcome, because determinant (B) causes both the health outcome and determinant (A).

exemplify how sexist attitudes can influence prognosis. It is conceivable that the relation between sex and morbidity disappears when these other determinants are considered.

Determinants May Interact With Each Other, and So Contextualize Health Effects

Finally, determinants may interact or contextualize each other's effect on health outcomes (see Figure 4). The interaction or *contextualization* of a determinant is often referred to as a *moderator* relation. Baron and Kenny (1986) recommended restricting the use of the term *moderator* to those occasions when a variable, such as biological sex, affects the strength of the relation between a determinant and a health outcome. For example, biological sex might moderate or interact with health service access in the prediction of cardiac disease diagnosis. That is, access of health services for cardiac diagnostic workup may be moderated by the sex of the person who enters an emergency room seeking medical attention for chest pain (Roger et al., 2000; Wong, Rodwell, Dawkins, Livesey, & Simpson, 2000). Women are often less likely to receive thorough cardiac assessments compared with men when presenting with symptoms at a health care facility (for a recent review, see Modena, Nuzzo, & Rossi, 2003). Women themselves have underestimated their likelihood of developing coronary heart disease (for a review, see Douglas & Ginsberg, 1996); women who have already experienced MI may benefit from education about cardiovascular-related symptoms and the necessity for prompt treatment (Kristofferzon et al., 2003). If the gender stereotype held by both health professionals and clients that men are more likely to have heart attacks is removed, then women may receive similar care at presentation. Adding further contextualization, women have been shown not to present with the same symptoms of chest pain as men (65-66; Douglas & Ginsberg, 1996; Sheps et al., 2001).

CONSIDERING THE MODIFIABILITY OF THE GENDER DETERMINANTS

Unfortunately, when it comes to health, "all persons are *not* born equal"—there are potential genetic predispositions (McKinlay, 1996, p. 7); however, there is equal

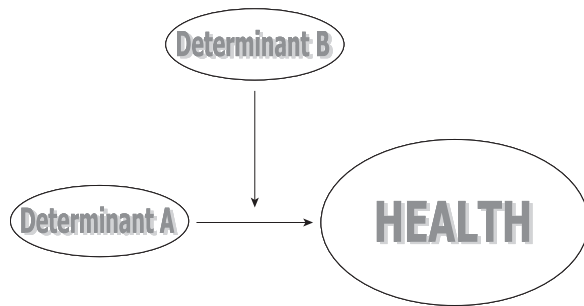


Figure 4. Determinants may interact or contextualize each other's effect upon health outcomes.

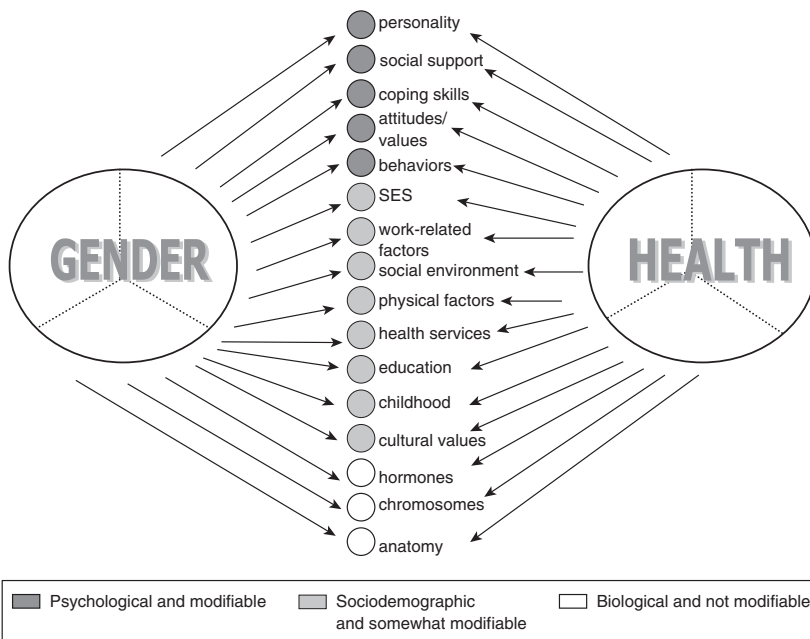


Figure 5. A gender and health model that exemplifies how health education researchers and practitioners can model the constructs of interest in their particular area of gender and health.

opportunity to examine and intervene with other determinants traditionally confounded with gender to improve personal and public health. To that optimistic end, we have constructed a gender and health model that exemplifies how health education researchers and practitioners can model the constructs of interest in their particular area of gender and health (see Figure 5). Four innovations should be emphasized: First, important non-biological-gendered determinants of health have been added for consideration. Second,

the modifiability of each determinant has been considered. Although the biological components of sex are not easily modifiable, examining each one independently allows one to fully consider if any part (such as estrogen withdrawal premenstrual syndrome) can be altered through intervention. Many of the gendered selves components are easily modifiable. Interventions that enhance social support, coping skills, or personal health practices can be implemented, and may generate health benefits. Third, it is suggested that gender is itself a multidetermined construct. That is, when gender is disaggregated into components, one starts to have a better understanding of the complex ways in which gender and sex actually operate and interact in affecting health. Fourth, neither gender nor health is unidimensional, even though both are frequently assessed with single items in health research. We must understand the multidimensional nature of both and carefully consider the instruments that we employ to capture these rich, but complex, constructs. Therein lies our opportunity to make a difference in public health.

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