Gender, Cardiovascular Disease, and the Sexism of Obesity*

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Cardiovascular disease (CVD) continues to kill more women than men annually in the United States (1), and although CVD death rates have declined in older women concomitant with the declines in older and young men, rates have actually increased in younger women (2). The WISE (Women’s Ischemic Syndrome Evaluation) (3) and VIRGO (Variation in Recovery: Role of Gender on Outcomes of Young Acute Myocardial Infarction Patients) (4) studies were appropriately funded by the National Heart, Lung, and Blood Institute to investigate this important issue. WISE, designed to improve diagnosis and prognosis of ischemic heart disease in women, has made numerous contributions, including the description of “female-pattern” coronary microvascular dysfunction, which is relatively prevalent in younger women (5) and contributes to the underdiagnosis and misdiagnosis of CVD and adverse outcomes (6). The VIRGO study, designed to investigate the adverse mortality in younger women with acute myocardial infarction (AMI), evaluated young (<55 years) women and men with AMI defined as symptoms and a positive biomarker and has prospectively confirmed the relatively adverse outcomes in the young women compared with the young men (4), as previously described in multiple prior studies.

In this issue of the Journal, in the study by Leifheit-Limson et al. (7) a new VIRGO analysis demonstrates that despite having a similar or greater risk factor burden, women are 11% less likely to have been told they are at risk and are counseled regarding risk modification 16% less often than men. Accordingly, these new results suggest that the rising epidemic of CVD in younger women may be attributable in part to a lack of risk assessment and preventive therapy. These results are concordant with an extensive body of literature that documents that women are less likely to receive all effective guideline-indicated cardiovascular therapy (8). Closing this guideline gap could potentially eliminate the adverse CVD mortality persistently experienced by women.

Why do these gaps exist, despite 20 years of awareness and guideline campaigns? We and others have described important biological gender differences that contribute to health disparities for women. Specifically, the female pattern of CVD, mechanistically driven by biological gender differences in metabolism, hormones, and the autonomic nervous system, is not detected by male-pattern diagnostics, and no major trials have addressed treatment strategies (6), which contributes to treatment and outcome disparities. The current VIRGO results, however, elaborate on an additional contributor: cultural gender differences, defined as the sociocultural
attributes of women and men (both patients and providers) that appear to be contributing to adverse CVD outcome disparities in women.

Similar to prior studies, the VIRGO women were more likely to be diabetic than VIRGO men. Indeed, diabetes is a relatively more potent risk factor for women, with a hazard ratio double that of men (9). Thus, it makes sense that the VIRGO women were more often diabetic; diabetes is a risk factor with an evidenced-based biological gender difference of relevance to the condition (AMI) of interest. Conversely, men were more likely to have dyslipidemia, despite an absence of evidence-based sex differences in risk or treatment of this risk factor (10). Because dyslipidemia was defined in large part by prior treatment, this likely reflects a cultural gender bias whereby men are more often prescribed guideline-indicated lipid-lowering therapy than risk-matched women (11). Paradoxically, the higher frequency of diabetes among the women should have dictated a relatively higher statin use than seen among men, because guidelines have indicated this group as a CVD equivalent for >20 years (12), which is sad evidence of an important gender bias-guideline gap that adversely impacts women.

Notably, VIRGO women were more often obese than the men. Gender differences in obesity again paradoxically demonstrate that male-pattern visceral obesity is a risk factor (13), whereas general female-pattern obesity is not. Indeed, body weight is not included in any CVD risk prediction score (14). General obesity is not an independent risk factor and does not improve CVD risk prediction in women or men. To evidence this sometimes surprising point, CVD mortality has continued to fall despite a robust obesity epidemic in which 74% of men and 64% of women are now overweight/obese (15), and obesity reduction trials have failed to reduce CVD (16).

So if obesity is not a risk factor or treatment target for CVD, why were the women in VIRGO more obese than the men? A cultural gender bias is again likely. Sexism is defined as attitudes or behavior based on traditional stereotypes of gender roles, including the sexual objectification of women (17). Prior study demonstrates that women are relatively more “objectified” in society, that is, judged by their appearance and physical attributes, than men, and indeed, women themselves reflect this gendered societal stance by expressing more concern about their bodyweight than men (18). Prior work confirms that women’s CVD risk is underestimated by health care providers (19). This suggests that health care providers are assessing CVD risk in women according to objectified appearance/body weight rather than validated risk factors. The VIRGO data extend this literature to support the concept of a sexism/objectification cultural gender bias whereby obese young women are more likely evaluated and therefore diagnosed with AMI.

New national survey data from the Women’s Heart Alliance support the concept that this misogyny impacts preventive heart care. Our nationally representative survey demonstrates that women report they are most often advised by health care providers that they are overweight/obese rather than assessed for validated risk factors when discussing heart disease risk (20). Further survey results indicate that women absorb this misogynistic messaging and report deferring visits to health care providers “until they have lost some weight” (20). These data indicate that heart health risk assessment and preventive therapy are stigmatized by gendered issues of physical appearance for women.

What must be done to close gender guideline gaps that contribute to the adverse CVD mortality in our young women? The Women’s Heart Alliance (21) has launched a nationwide campaign of: 1) awareness to destigmatize heart disease among women and providers (FighttheLadyKiller); 2) action to empower women to request and providers to use the ASCVD heart risk check (#getheartchecked); and 3) advocacy to increase heart disease research in women (22), who now constitute the majority of victims yet remain a minority of research subjects (23). Providers should test themselves regarding gender, obesity, ethnicity, and other biases using the short and free “Implicit Bias” test (24). Prior work demonstrates that those who firmly believe that they are unbiased test out as the most biased (25). The misogyny of obesity is a gendered social stigma that contributes to women not discussing heart health and providers failing to use evidence-based assessment and therapy. Communication and outreach are sorely needed to counter stereotypes about heart disease with facts and validated risk assessment so women and physicians can know and practice the truth.

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