

CARDIOVASCULAR MEDICINE AND SOCIETY

Does Patient-Physician Gender Concordance Influence Patient Perceptions or Outcomes?



Emily S. Lau, MD,^a Sharonne N. Hayes, MD,^b Annabelle Santos Volgman, MD,^c Kathryn Lindley, MD,^d Carl J. Pepine, MD,^e Malissa J. Wood, MD,^a and the American College of Cardiology Cardiovascular Disease in Women Section

Over the past several decades, there has been considerable progress in women's health, but changes in the gender composition of our physician workforce have been slow to adapt to the current landscape. Since 2019, women now comprise the majority of medical students enrolled in U.S. medical schools. This follows a trend of steady increases in the number of female medical students, from 46.9% in 2015 to 50.5% in 2019 among all medical school students. Despite this trend, the number of women physicians in some subspecialties, such as cardiology, cardiothoracic surgery, vascular surgery, and so on, remain staggeringly low. Only about 1 in 5 adult cardiology Fellows of the American College of Cardiology are women, and the percentage of women in cardiology is only 12.6%, despite drawing from internal medicine residency programs that are comprised of 50% women.

Emerging data in health care suggests that physician gender may affect patient outcomes (1). This is particularly important in light of continued sex disparities in patient outcomes for many disorders. For instance, among patients presenting with acute coronary syndromes (ACS), women are consistently less likely than men to be referred for appropriate treatment during an acute myocardial infarction (AMI) and are less likely to receive guideline-recommended therapies following their hospitalizations. Underlying

reasons are likely multifactorial and incompletely understood, but they relate, at least in part, to biological sex and/or gender differences in disease presentation, pathophysiology, and treatment responses as well as under-representation of female subjects in clinical trials. Additionally, gender patient-provider discordance has been proposed as a potential factor contributing to these observed disparities. In this context, we reviewed the limited data available on the association of patient-physician gender concordance with patient outcomes and preference to identify important knowledge gaps and formulate recommendations to address some of these areas.

The Cardiovascular Disease in Women Section of the American College of Cardiology conducted a systematic review of studies examining patient-provider sex/gender concordance published in English from 2009 to 2019. A total of 872 potential titles were identified and screened and 13 studies were found eligible for inclusion. Of these, 8 studies examined patient "outcomes" and 5 studied patient "preferences." **Table 1** summarizes key characteristics and outcomes for each of the included studies. Among the 8 studies that examined patient outcomes (**Table 1**, top), 6 found that "patient-provider gender concordance" influenced clinical outcomes. By contrast, of the 5 studies that examined patient preferences

From the ^aCardiology Division, Department of Medicine, Massachusetts General Hospital, Boston, Massachusetts, USA; ^bDepartment of Cardiovascular Medicine, Mayo Clinic, Rochester, Minnesota, USA; ^cDivision of Cardiology, Department of Medicine, Rush University Medical Center, Chicago, Illinois, USA; ^dCardiovascular Division, Department of Internal Medicine, Washington University School of Medicine, St. Louis, Missouri, USA; and the ^eDivision of Cardiovascular Medicine, Department of Medicine, University of Florida, Gainesville, Florida, USA.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

Manuscript received November 25, 2020; accepted December 8, 2020.

TABLE 1 Results of Individual Studies

First Author, Year	Specialty	Design	Study Objective	Findings
Patient outcome studies				
Schmittziel, 2009	Primary care	Cross-sectional	CVD risk factor control and DM treatment (HbA1c, LDL-C, and SBP targets)	F PPGC +
Pickett-Blakeley, 2011	Primary care	Survey	Weight-related counseling in obese patients	M PPGC +
Jerant, 2011	Preventive care	Survey	Preventive care targets (cancer screening, influenza vaccination)	PPGC ∅
Krahenmann, 2014	Preventive care	Retrospective cohort	Preventive care targets (cancer screening, vaccination, counseling)	PPGC ∅
Yang, 2016	Primary care	Survey	Weight-related advice	PPGC ∅
Malhotra, 2017	Oncology	Cross-sectional	Screening for breast, cervical, and colorectal cancer	PPGC +
Eggermont, 2018	Primary care	Electronic health record	Appropriate antibiotic prescribing behavior	F PPGC +
Greenwood, 2018	Cardiology	Database	Survival rates following AMI	F PPGC +
Patient perception studies				
Bertakis, 2009	Primary care	Audiotaped observational	Patient-centered communication	PPGC ∅
Bertakis, 2012	Primary care	Videotaped observational	Patient-centered communication	F PPGC +
Scheid, 2017	N/A	Survey	Patient trust among low SES women enrolled in Medicaid case management	PPGC ∅
Smith, 2018	N/A	Telephone survey	Patient trust of physician extenders	F PPGC +
Crawford, 2019	Hospital medicine	Survey	Patient assessment of physician performance	PPGC ∅

+ = positive association; ∅ = no association; AMI = acute myocardial infarction; CVD = cardiovascular disease; DM = diabetes mellitus; HbA1c = hemoglobin A1c; LDL-C = low-density lipoprotein cholesterol; PPGC = patient-provider gender concordance; SBP = systolic blood pressure; SES = socioeconomic status.

(Table 1, bottom), only 2 demonstrated an association between “gender concordance” and patient behavior.

PATIENT-PROVIDER GENDER CONCORDANCE MAY INFLUENCE PATIENT OUTCOMES

Our review found data supporting the suggestion that patient-provider gender concordance may influence patient outcomes. In a study of 157,458 Kaiser Permanente Northern California adult diabetes patients treated by primary care physicians (PCPs), investigators found that female patients were much less likely to receive treatment intensification for suboptimal risk factor control than male patients, particularly when they were treated by a male PCP. On the other hand, female PCPs were more likely than their male counterparts to intensify therapy for hyperlipidemia and hypertension (2). Another investigation of patients admitted to Florida hospitals for AMI between 1991 and 2010 observed that mortality was highest among female patients treated by male physicians (3), whereas mortality rates were similar between men and women if the treating physician was female. Indeed, the authors found that patient-provider gender concordance was associated with reduced probability of death by 5.4% relative to a baseline mortality rate of 11.9%. Interestingly, when male physicians in that study had more exposure to female patients and physicians, the authors observed that these male physicians had more success treating female patients versus male physicians with less exposure to female patients.

By contrast, 3 of the 8 eligible studies observed that patient-provider gender concordance had *no influence* on patient outcomes (4-6). Two of these studies examined data from the Medical Expenditure Survey and found that although female health care providers were more likely to meet certain health care metrics, including mammography and weight-related counseling, patient-provider gender concordance did not influence health care delivery in this national sample (5,6).

PATIENT-PROVIDER GENDER CONCORDANCE MAY HAVE LESS EFFECT ON PATIENT PREFERENCE

Although patient-provider gender concordance may influence *patient outcomes*, our review suggests that gender concordance has less effect on *patient preference*. In a stratified, random sample of Medicaid beneficiaries enrolled in North Carolina Medicaid’s primary care case management delivery program, patient-physician gender concordance *did not improve* patients’ trust of their physician (7). Also, in a single-center study of inpatients cared for on a general medicine, nonteaching unit, investigators evaluated the association of patient-provider gender concordance with patient satisfaction scores using the validated Tool to Assess Inpatient Satisfaction with Care from Hospitalists (TAISCH) score. They observed that there was no significant difference in TAISCH scores between gender concordant and discordant doctor-patient dyads (8).

Our review reveals that the available data on the impact of patient-physician gender concordance on patient outcomes and preference are limited and mixed. Moreover, there are no data available from randomized controlled studies. Although recent observational data support the gender differences in patient outcomes, the mechanisms underlying this stark asymmetry in outcomes and whether physician-patient concordance plays a role is not known. In addition to physician-patient gender concordance, other hypotheses have been proposed to explain gender disparities in patient outcomes. First, recent data suggest that female physicians have better patient outcomes compared with their male peers (1,3). Limited studies observed that female physicians, on average, spend more time with patients, both men and women, compared with male physicians and tend to exhibit more patient-centered communication techniques that are generally preferred by patients (9). Second, implicit bias is increasingly being suggested as an important factor contributing to health care disparities. In a study of 2 Canadian national databases of patients with atrial fibrillation, male physicians were more likely to overestimate stroke risk in men and underestimate risk in women, whereas female physicians accurately estimated stroke risk in women but underestimated risk in men (10). Finally, and critically important, training in women's health is lacking in U.S. medical education and may, in part, explain why women experience worse patient outcomes than men. A better understanding of the mechanisms driving gender differences in patient outcomes, including whether patient-provider gender concordance truly affects patient outcomes, can help guide targets for intervention.

CALL TO ACTION

Although data on patient-provider gender concordance are very limited, they do highlight the need for further investigation into the magnitude of this concordance, its potential influence on patient outcomes, and if so, how gender concordance impacts patient outcomes. We therefore propose 3 classes of recommendations: 1) improve measures to increase gender diversity in the physician workforce; 2) provide improved gender- and sex-specific medical education; and 3) increase research in this area.

RECOMMENDATIONS TO INCREASE GENDER DIVERSITY IN THE PHYSICIAN WORKFORCE

Increasing patient-physician gender concordance may improve patient outcomes. To achieve gender

concordance in clinical practice, our physician workforce must better reflect the gender composition of our overall patient population:

- Increase the number of women in our workforce pipeline through a series of comprehensive interventions designed to directly address the existing implicit and explicit biases that have limited opportunities for women in cardiovascular medicine. Providing improved mentoring and earlier exposure to the practice of cardiovascular medicine, both in the inpatient and outpatient settings, would facilitate this.
- Change the culture of cardiology to be more female and family friendly. In a survey of internal medicine trainees, respondents who emphasized work-life balance and female friendliness were more likely not to pursue cardiology as a subspecialty. Interventions to shift the culture to embrace family and women is vital for the recruitment and retention of more women into cardiovascular medicine and surgical fields.
- Increase the representation of women in leadership positions in cardiovascular medicine. Attrition of women in the leadership pipeline should be specifically targeted through sponsorship, mentorship, and flexible career pathways, as diversification of leadership promotes innovation and advancement in patient care, research, and health care delivery.

RECOMMENDATIONS TO IMPROVE SEX- AND GENDER-SPECIFIC MEDICAL TRAINING

Although patient-physician gender concordance may be preferred to gender discordance, it is important that physicians provide similar care of the highest quality for all patients, both men and women. This could be accomplished by the following recommendations:

- Increase sex- and gender-specific education in medical training, especially in cardiovascular training. Curricula should focus on the presentation, diagnosis, and treatment of women and men, and highlight specific differences.
- Include more comprehensive behavioral health curriculum in medical schools to address increasing levels of stress, depression, and anxiety faced by women, as well as men, with cardiovascular disease.
- Teach patient-centered communication styles during undergraduate and graduate medical training. In observational studies, patient-centered communication styles are more commonly adopted by

female providers. We should aim to teach all of our medical trainees to adopt patient-centered techniques when communicating with their patients.

- Introduce implicit bias training into undergraduate and graduate medical education.

RECOMMENDATIONS TO INCREASE RESEARCH ON THE ROLE OF GENDER IN PATIENT-PHYSICIAN RELATIONSHIPS AND PATIENT OUTCOMES

How patient-physician gender concordance influences patient outcomes is not well understood, especially among patients with cardiovascular disease. Improved understanding of the mechanistic drivers will be able to guide future interventions:

- Nonrandomized experimental designs that incorporate economic approaches with medical research may offer insights into the role of gender in

patient-physician relationships and patient outcomes.

More well-designed, scientifically rigorous sociological and behavioral research is needed to understand the physician behaviors associated with improved patient outcomes in general and, more specifically, the mechanisms driving differential outcomes in gender physician-patient pairings, including drivers of implicit and explicit bias.

FUNDING SUPPORT AND AUTHOR DISCLOSURES

All authors have reported that they have no relationships relevant to the contents of this paper to disclose.

ADDRESS FOR CORRESPONDENCE: Dr. Malissa J. Wood, Massachusetts General Hospital, Blake 256, 55 Fruit Street, Boston, Massachusetts 02114, USA. E-mail: mjwood@partners.org. Twitter: [@emilyswluau](https://twitter.com/emilyswluau), [@drmalissawood](https://twitter.com/drmalissawood).

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KEY WORDS diversity, gender, patient-provider concordance, women