PERSPECTIVES

Differences in Clinical Communication by Gender

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Researchers have reported contradictory findings regarding gender bias in diagnosis and treatment. The majority of findings indicate no such bias, but a sizable literature exists indicating that physicians make more diagnostic errors and initiate less-aggressive interventions with women than with men.[1–15] Recent changes, such as making treatment protocols more sex-specific and including women in major drug trials, have reduced the disparity in treatment, but they have not eliminated it.[14,16]

According to an American Medical Association Task Force on Gender Disparities in Clinical Decision-Making,[17] the most common explanation for diagnostic errors observed with women patients is clinicians' readiness to attribute women's symptoms to "overanxiousness."[17] Many physicians might assume that the presence or absence of positive test results provides a reliable criterion for separating women with emotional or psychological disturbances from those with organic disease, but this assumption is not supported by research. Women continue to be diagnosed as overanxious even in the presence of positive test results.[17] The difficulty that physicians experience in correctly evaluating the seriousness of women's symptoms, and evidence that the manner in which the symptoms are reported may be relevant for understanding treatment bias, prompted our investigation of communication differences. This essay reviews what is known about gender differences in communication and explores the extent to which those differences might be implicated in the reported gender bias in clinical diagnosis and treatment. We then address alternative explanations proposed to account for differences in diagnosis and treatment by sex and the research needed to clarify both the disparity and the role of communication in it.

REVIEW OF EVIDENCE

Physicians appear to make more effort to communicate with their female patients than male patients: they give female patients more time,[18–20] more explanations,[20,21] more explanations rephrased from medical terminology into lay terms, and more responses to questions at the level of speech of the patient.[20] But the communication process is more complex than these results might indicate. Longer visits given to women are primarily a function of the more detailed histories offered by women.[22] During symptomatic visits women present more complaints,[23] are less succinct and reserved in their comments,[24,25] and report a greater variety of illnesses than do men.[23] Also, physicians spontaneously give men and women equal numbers of explanations, but additional questions from women require more explanations that physicians condense into approximately the same amount of time given to men.[22,26] Consequently, physicians' conversations with female patients require more communicative effort yet may result in less counseling when encounters are of the same duration as men's.[22,27] Physicians perceive they give more information to men,[28] but longer answers with less redundancy probably shape this perception.

Differences may also exist in how female and male patients participate in clinical encounters and how physicians react. Women ask more questions, but physicians rate them equal to men on desire for information.[21,25] Physicians ask women fewer questions, implying they presuppose information in the medical history of females rather than ask for clarification.[18,27] When women offer medical explanations, physicians are more likely to reject the explanations from women than they are those from men.[29]

Hall et al. found that male sex was a significant predictor for physicians' liking for their patients after controlling for other demographic variables.[30] Subsequent research found physicians asked men and women the same number of questions, but cross-sex encounters exhibited more tension or boredom than same-sex encounters.[31] Female physicians with male patients were rated as less friendly than other configurations, and voices of male physicians with female patients were rated as more bored than voices of female clinicians.[31] Female patients were spoken to in a less-interested fashion than male patients by both male and female physicians.[31]

In daily conversation women more often mention interpersonal relations or affective reactions to events, while men are more likely to give objective reports of events.[25,32,33] This characteristic is reflected in medical encounters in which women are more likely than men to include affective information along with physical symptoms.[23,25] Women are

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more likely to be support providers for children, spouses, and elderly parents than are men,[34–38] a responsibility that has a negative relation to women's health: as the size of a family network increases, the health of middle-aged women decreases.[39–41] In addition, women are more likely than men to be victims of adult domestic violence.[42–44] Despite the greater health importance that relationships carry for women, doctors may not understand the purpose of the comments or may see them as irrelevant, repetitious,[45] or signifying undue worry on the patient's part.

In general sociolinguistic research, a man confronted with a problem generally prefers to solve it himself; a woman is more likely to seek out suggestions and then solve it consensually.[46] In the medical equivalent, male physicians may tend to think that problems presented must be solved, while female patients may want to discuss problems[47] but do not necessarily expect the physician to resolve them. Indeed, women use discussions with physicians to clarify problems and to explore the implications in their lives,[26,47,48] an expectation that can frustrate men,[49] including male physicians.[50] Male patients, on the other hand, present problems which they expect the physician to resolve.

As might be anticipated, female physicians' encounters with both female and male patients are of longer duration than those of male physicians, and they include more positive talk, partnership building, information giving, and emotional support.[27,31,51,52] The National Ambulatory Medical Care Survey reported that female and male physicians spent, on average, 23.5 minutes and 18.7 minutes per patient, respectively.[53] However, the additional talk in encounters with female physicians has not been associated with greater diagnostic or treatment accuracy.[54–57] Most of the extra encounter time is devoted to physicians' talking rather than information gathering,[27] suggesting that female physicians use the time to offer options or explanations to patients of both sexes, to negotiate treatment, and to provide emotional support.[31] This difference occurs despite the greater likelihood of female physicians working in HMOs,[58] which frequently increases the pressure for shorter encounters. On the other hand, female physicians are likely to view patient autonomy and initiative more negatively than their male colleagues,[59] indicating, again, a preference by women for consensual decision making.

The pattern emerges again in the manner in which treatment plans are negotiated. Male physicians may explain the meaning of a female patient's comments back to her and then attempt to guide her behavior through suggestions or instructions.[18] Female patients may make overt attempts to share the control of the discussion by insisting on the validity of their symptoms with repetition, becoming more dramatic in their presentation of symptoms, switching to new symptoms,[60] or reporting symptoms of questionable severity.[61]

According to the Medical Outcomes Study (MOS), communication difficulties between female patients and male patients may be mitigated when physicians have had prior communication training.[62,63] Under these circumstances, female patients reported greater involvement in decision making with both male and female physicians than did men.[62] In addition, a positive relation existed between physicians' history of communication training and patients' perceptions of participation in decision making. Apparently women, more than men, either experienced or perceived an increased role in decision making when their physicians were trained in skills of negotiation and shared decision making. On the other hand, male patients perceived themselves as less involved in negotiation of treatment plans than female patients regardless of the sex of the physician,[62] a finding consistent with male expectations regarding decision making during a task-oriented encounter. Kaplan and colleagues found the least participatory encounters occurred between male physicians and male patients.[62]

The MOS findings suggest that inclusion of communication courses in medical training programs could mitigate communication problems identified in cross-sex encounters. However, a nationwide survey of the population at large, The Commonwealth Fund Commission on Women's Health, suggests continued concern is warranted. This survey utilized a longitudinal design, rather than the cross-sectional design of the MOS, plus a protocol that specifically explored problems women experienced with medical caregivers. The survey reported that more women than men felt physicians talked down to them during clinical encounters (25% vs 12%) and told them their problems were "in their heads" (17% vs 7%). Women changed physicians more frequently than men owing to difficulties in communication (41% vs 27%). Ninety-two percent of the women with histories of domestic abuse did not share these histories with their physicians, and 40% did not report symptoms of current major depression, a trend that was particularly strong among young women. The presence of unrecognized depression or posttraumatic stress disorder are problematic because they increase the likelihood that the symptom presented will be reported with dramatic and fragmented narratives.[64]

Lower-class women discuss less with their physicians than either men or middle-class women.[27,65] Roter and colleagues compared mixed-sex and same-sex pairs among 127 male and female physicians and over 500 of their poor, chronic-care male and female patients for the length of interview and amount of talk exchanged during history taking, physical examination, and the concluding segment of the visit.[27] The male physician–female patient encounters showed approximately 15% less talk during the history taking and concluding discussion than the male physician–male patient encounters. The amount of information given to lower-class patients is likely to be diminished further because physicians tend to give them emotional support,[26,66,67] rather than the factual information given middle-class patients.[26,65]

In summary, a man and a woman presenting with the same symptoms are likely to report them differently. The

woman would be more likely to include contextual information, unrelated symptoms, and affective responses to the symptoms, and to question the physician closely regarding information about the symptoms. Women frequently suffer from undisclosed major depression or domestic violence, problems that may be related to a tendency among some women to dramatize symptom presentations. Male physicians in encounters with female patients are more likely to exhibit tension and boredom nonverbally through voice qualities than are female physicians, a situation that may be related to the longer and more complex symptom presentations of women. Female patients, in turn, are more likely to perceive that they are being talked down to by the physician. Women expect to negotiate their treatment options with physicians, which can be time-consuming, although clinicians trained in communication skills appear adept at managing this negotiation satisfactorily. Tables 1 and 2 summarize the communication findings for patients and physicians, respectively.

IMPLICATIONS OF PRESENTATION MANNER

Perceptions of Emotion

Differences in communicative style and expectations would have diagnostic implications if they increase the importance of emotion in the development and maintenance of women's symptoms. Physicians do appear to have difficulty evaluating the contribution of emotion in the development of women's symptoms. In response to vignettes of men and women suffering from identical symptoms, physicians diagnosed men's illnesses as either psychosomatic or organic depending on the symptoms but were more likely to diagnose women's illnesses as psychosomatic regardless of the symptoms.[68,69] In another study, clinicians incorrectly classified more women as psychosocially disturbed than men although there was no difference in the proportions of men and women who were emotionally disturbed when assessed in a separate evaluation.[70] The above evidence indicates a greater likelihood to attribute women's symptoms to psychosomatic causes than is warranted.

Findings from the literature on attribution theory in social psychology have shown that exposure to emotional or dramatic feminine behavior can bias subsequent observations of women's behavior. The observer becomes more likely to attribute subsequent behavior by women to emotionality, even when they do not display overt emotion.[71–74] Consequently, female gender alone could produce a misperception of the symptoms if that gender has become associated with emotionality in the mind of the physician. According to the communication literature, physicians are highly likely to have witnessed greater affectivity during women's presentations than during men's so clinicians can become vulnerable to the attribution bias. The tendency to attribute women's symptoms, either completely or partially, to emotional causes also appeared in the National Ambulatory Medical Care Survey data,[23] in which physicians reported a tendency to give more women than men an ill-defined diagnosis or a mixture of physical and mental diagnoses.

Further evidence links the patient's sex and manner of presentation to misdiagnoses among women but not among men. Women were more likely to receive mental health misdiagnoses in initial primary care visits than were men, even after correcting for the higher epidemiologic rates of mental health problems among women.[70,75,76] However, the difference in the rates of misdiagnoses for men and women disappeared after the third appointment, when physicians were better able to evaluate women's symptoms than they were initially.[75] In addition, the presence of emotion during medical encounters has been associated with misdiagnoses for women but not for men.[70]

In an experimental study, two groups of randomly assigned internists were shown one of two silent videotapes with identically scripted dialogue of cardiac symptoms in subtitles. One videotape featured the actress as a businesswoman and the other as an affectively expressive woman. Initial diagnostic impressions differed widely. Even after viewing the patients' positive laboratory results, the physicians still differed markedly in their decisions to pursue a cardiac workup (93% vs. 53%).[3] The finding suggests that the presence of nonverbal affectivity introduced sufficient ambiguity into the physician's interpretation and classification of symptoms to bias decision making despite the positive test results.

In these studies, physicians were initially unfamiliar with the patients, so the early stages of diagnosis and treatment appear more susceptible to diagnostic error than later stages when physicians are better acquainted with the women and accumulated clinical evidence becomes more salient in decision making.

Is Perceived Emotionality Important Clinically?

A significant question is whether the pattern of misdiagnosis that occurs in experimental or mental health situations also occurs in clinical settings. In 1991 the American Medical Association's Task Force on Gender Disparities in Clinical Decision-Making[17] used medical histories and subsequent interventions to review a national sample of patients suffering from cardiac, kidney, or lung disease and found that women had a substantially lower chance of being diagnosed for these illnesses than men. According to the Task Force, men were 6.5 times more likely to receive catheterization for heart disease than women after controlling for abnormal test results, age, types of angina, presence of symptoms, and confirmed previous myocardial infarctions. In related studies for kidney disease, women were 30% less likely to receive a kidney transplant, and the likelihood diminished to 50% between ages 46 and 60.[6,77] Men were twice as likely to receive a sputum test for lung cancer,[12,15,78] and when smoking history was controlled, men were 60% more likely to be tested.[17] Among patients with peripheral vascular disease of lower extremities without

Table 1. Patient Gender Differences in Communication Behavior During Medical Encounters

Study	Study Focus	Findings			
		Female Patients	Signif.*	Male Patients	Signif.*
Waitzkin[20] (n = 314; n = 34)†	Information giving	More responses to questions	$p < .01$		
		More doctor time	$p < .05$		
		More explanatons	$p < .01$		
Wallen et al.[22] (n = 336)	Information giving	Longer visits	$p < .001$	Fewer explanations (but equal time)	$p < .01$
		More psychological diagnoses	$p < .05$		
		More follow-up questions	$p < .001$		
Verbrugge[23] (National Ambulatory Medical Care Survey)	Diagnoses	Receive organic diagnoses	13%	Receive organic diagnoses	19%
		Mix organic & psychological diagnoses	41%	Mix organic & psychological diagnoses	33%
		Illnesses rated as severe	18%	Illnesses rated as severe	25%
		Multiple complaints in symptomatic visits	43%	Multiple complaints in symptomatic visits	29%
Meeuwesen et al.[18] (n = 85)		Fewer questions by physician	$p < .01$	Physicians give more attention	$p < .05$
		More time from male physicians	$p < .05$		
		Receive more information	$p < .05$		
		Talk more about other persons	$p < .05$		
		Psychosocial patients made more effort to control discussion	$p < .001$		
Hall & Roter[19] (Meta-analysis)	Satisfaction	Receive more total communication	$p < .0001$		
Wodak[25] (n = 1,134)	Narratives	Mention interpersonal relations	73%	Mention interpersonal relations	27%
		Report circumstances of event	35%	Report circumstances of event	38%
Stewart[26] (n = 142; n = 24)†	Affectivity	Express more emotions	$p < .01$	Present more facts	$p < .05$
Hall et al.[31] (n = 100; n = 50)†	Cross-gender encounters	Physicians sound more tense & bored and speak disinterestedly	$p = .01$	Female physician visits least friendly	$p < .001$
		Most satisfied with care	$p = .05$	Least satisfied with young female physicians	$p < .005$
				Dislike psychosocial talk	$p < .05$
				Least satisfied with young, female physicians	$p = .05$
Hall et al.[52] (n = 621; n = 50)†	Cross-gender encounters	Like emotionally supportive talk	$p = .01$	Liked psychosocial talk with male physicians but not female	$p = .05$
		Like less dominant physicians	$p = .05$		
Kaplan et al.[62] (n = 8,316; n = 344)†	Decision making	Female patient–female physician visits most participatory	$p < .01$	Male patient–male physician visits least participatory	$p < .01$
Davis[60] (n = 315; n = 52)†	Relationships	Give more dramatic presentations	Qual.		
		More likely to switch symptoms			
		Symptoms of questionable severity			
Commonwealth Fund's Commission on Women's Health[44] (n = 2,525)	Women's health	Perceived being talked down to	25%	Perceived being talked down to	12%
		Told problem "in head"	17%	Told problem "in head"	7%
		Changed physicians due to communication problems	41%	Changed physicians due to communication problems	27%
		Dissatisfied with physician after assault	24%		
		Currently severely depressed	40%		
		Domestic violence not reported to doctors	92%		
		Women with childhood abuse	30%		

(*Continued*)

Table 1. (Continued)

Study	Study Focus	Findings			
		Female Patients	Signif.*	Male Patients	Signif.*
Fisher & Groce[29] (n = 43; n = 18)†	Relationships	Medical explanations rejected	50%	Medical explanations rejected	25%
Hall et al.[30] (n = 530)	Affect for patient			Better liked by physicians	$p < .01$
Booth-Butterfield & Booth-Butterfield[33]	Affect	Report affective responses to events	Qual.	Medical explanations rejected	7%
		Medical explanations rejected	14%		
Tannen[49] (n = 16)	Acquaintances	Develop rapport using variety of topics	Qual.	Give objective reports within fewer topics	Qual.
		Solve problems consensually			
Tannen[46]	Decision making	Solve problems consensually	Qual.	Solve problems individually	Qual.
Kendall & Tannen[114]	Talk at work	More egalitarian when talking with subordinates	Qual.		
Malterud[48] (n = 122)	Complaints	Women discuss health implications of contextual problems	Qual.		
Reid et al.[101] (n = 52)	Complaints	Felt credibility was often questioned	Qual.		
		Changed physicians to attain credibility	40%		
Bernstein & Kane[68] (n = 253)	Psychoemotional illness	More likely diagnosed with psychosomatic illness regardless of symptoms	$p < .01$		
		Emotional factors considered significant for diagnosing women's symptoms	$p < .01$		
Armitage et al.[1] (n = 181)	Workups			More extensive workups in 4 of 5 complaints	$p < .005$
Redman et al.[70] (n = 1,913)	Psychoemotional illness	Overestimate psychological illness among women at subclinical levels	$p < .05$		
		but not at clinical levels	NS		
Birdwell et al.[3] (n = 44)	CAD workup	Flamboyant patient vs businesswomen: Initial impression of likelihood of CAD	$p < .05$		
		Likelihood of CAD after lab results	NS		
		Pursue noninvasive cardiac workup	$p < .001$		
Kaplan et al.[115] (n = 205; n = 20)†	Decision making	Health associated with participatory style of physician	$p < .05$		
Waitzkin[21] (n = 314; n = 34)†	Information giving	Seen as equal to men on desire for information	NS		

Qual. indicates qualitative; NS, nonsignificant finding.

†*Indicates number of participating physicians.*

salvage indications, men were twice as likely as women to undergo procedures.[5] The Task Force reported that the most common explanation for the diagnostic errors was the attribution of women's symptoms to "overanxiousness" rather than organic pathology.[17]

In Verbrugge's analysis of the diagnoses submitted to the National Ambulatory Medical Care Survey, she found that women were more likely to receive an emotional diagnosis for an ambiguous symptom than men.[79] For example, women presenting with headaches were almost twice as likely as men to receive a mental or nervous diagnosis, while men were more likely to receive a diagnosis of organic disturbance, primarily respiratory illness. Bickell and colleagues found a similar confusion for the women with coronary artery disease: examining physicians were more likely to characterize women's symptoms as "atypical" than men's, although why the symptoms were atypical was not explored.[80] However, after an organic diagnosis has been made, communication and outcomes research indicates that women receive care equal to that given men or perhaps

better in terms of doctor time and continuity of care.[20,23] Therefore, we hypothesized that early stages of patient management are more problematic for women than later stages.

The Case of Coronary Artery Disease

To pursue this hypothesis, we reviewed the clinical literature on coronary artery disease, which has a sizable literature of studies with comparable methodologies. Our review indicated that a gender disparity occurred when the data collection started early in the management of the patient. Admission rates to some hospitals for evaluation of patients for possible cardiovascular disease varied between genders.[81] Studies of approximately 75,000 patients with coronary artery disease found that women were significantly less likely to undergo angiography, catheterization, or coronary artery bypass surgery,[2,8,81,82] Excluding patients with less than a 5-day stay to eliminate those returning for procedures or readmissions, the bias continued to exist when only acute myocardial infarction (AMI) patients were examined.[2] In a community-wide survey of AMI patients in a major metropolitan area, men were found to be more likely to undergo radionuclide ventriculography, Holter monitoring, treadmill testing, catheterization, and angioplasty, while women were more likely to undergo echocardiography.[83] The difference in use of additional diagnostic and therapeutic procedures occurred despite statistically controlling for demographic and clinical factors that would affect selection of diagnostic and treatment procedures.

On the other hand, when women who had undergone catheterization were analyzed separately for the referral rate for revascularization (coronary artery bypass surgery), they had the same rate as did men.[80,82,84–86] One study of women referred to a cardiology unit *before* catheterization reported no difference in subsequent rates of men and women referred for the procedure.[87] However, this latter study used patients who had been referred by private physicians to an academic center for follow-up examinations. A disparity in treatment does not appear in studies conducted on patients whose symptoms have already been classified as serious and who are being considered for more aggressive management.[84] At that point, clinical and demographic factors typically explain differences in use of treatment procedures. The pattern of findings indicates that a systematic bias may occur early in the management of the patient that is unlikely to be explained by anatomic or physiologic considerations alone. Thus, we offer that the bias is more likely to originate in a misperception of the seriousness of women's symptoms rather than a withholding of treatment after accurate diagnosis.

QUESTIONS ABOUT THE DIAGNOSTIC BIAS

Challenges to the existence of gender disparity have included observations that (1) women's higher utilization rate

Table 2. Physician Gender Differences in Communication Behavior During Medical Encounters

Study	Study Focus	Findings			
		Female Physicans	Signif.*	Male Physicians	Signif.*
Roter et al.[27] (n = 537; n = 127)†	Gender patterns	More talk with patients	$p < .001$		
		Patients ask more questions	$p < .05$		
		Provide more information	$p < .001$		
		More positive talk	$p < .05$		
		More partnership building	$p < .005$		
		More information giving	$p < .0001$		
		Longer visits	$p < .005$		
Meeuwesen et al.[18] (n = 85)	Information giving	Give more information	$p < .05$	Instruct or suggest patient behavior	$p < .05$
Kaplan et al.[63] (n = 7,730; n = 300)†	Decision making			Sex of physician and participatory decision making	NS
Shye et al.[59] (n = 200)	Autonomy	Perceive patient autonomy negatively	M = 17.1	View patient autonomy favorably	M = 19.4
Ainsworth-Vaughn[116] (n = 8; n = 8)†	Conversation topics	Negotiate shifts in topics	Qual.	Introduce topic shifts unilaterally	Qual.
		Minimize status differences			
Hall et al.[31] (n = 100; n = 50)†	Patient-centered comments	Provide emotional support,	$p < .001$		
		partnership building,	$p < .0001$		
		positive talk,	$p < .005$		
		longer visits	$p < .01$		
Hall et al.[52] (n = 621; n = 50)†	Cross-gender encounters			Higher satisfaction ratings than female physicians	p = .05

Qual. indicates qualitative; NS, nonsignificant finding.

†*Indicates number of participating physicians.*

for primary and continuity care increases their chances for early detection and positive outcomes; (2) women report higher satisfaction rates for their medical care than men; (3) the more assertive posture of today's young women compared with older women makes a disparity in care unlikely to continue; and (4) disparity in diagnoses may be traceable to insurance coverage rather than gender bias in diagnosis or treatment.[88]

Rate of utilization may be influenced by women's need for repeat encounters to receive desired or necessary care. Women may require three visits and men one in order to separate mental health from organic problems.[75] Women are more likely to use primary care services for drug and alcohol problems because drug and rehabilitation services are intended primarily for men.[61] Women also suffer higher rates of sexual and physical abuse than do men, which often manifests as somatic symptoms that bring them to primary care settings.[89–95] Women suffer from more chronic conditions, e.g., diabetes, that require monitoring by primary care providers than men do. Women have higher rates of emotional disorders than men, and the majority seek care from primary providers. Men, on the other hand, are more likely to be hospitalized for symptoms[96] perceived as life-threatening by both patient and physician.[11] Men may be overtreated, particularly for low-risk conditions.[81] Similarly, men are more likely than women to be referred out of primary care to a specialist.[97] Given these considerations, utilization rates do not provide evidence for or against a gender bias in diagnosis.

Satisfaction rates for clinical care are typically high among women. As mentioned, women feel they are more involved in the negotiation of their treatment regimens when their physicians have had communication training.[52] When prognosis is uncertain, physicians spend more time talking to women than to men.[20] Women are more tolerant of young male physicians although they prefer older, more experienced clinicians. Men, on the other hand, give lower satisfaction ratings to female physicians of all ages than do women, and men give significantly lower ratings to young, female physicians.[52] Physicians are more interpersonally engaged with and provide more opinions to patients who are more rather than less affectively expressive, and patients who ask questions elicit more information.[98,99] These patient characteristics slightly favor the likelihood of female patients receiving more information and developing warm, friendly relationships with their clinicians. However, not all women have excellent, long-term relationships with clinicians with whom they are satisfied, as demonstrated by reports that a sizable number of women "doctor-shop" to find clinicians with whom they could communicate satisfactorily.[44,100,101] In addition, the presence of satisfactory relationships between female patients and their primary care providers does not preclude problems between the same female patients and physicians with whom they are less familiar.

Evidence does not support the conclusion that the assertiveness of young women today would make gender bias in their care less likely than what might be found among older women. Women who report their symptoms in a straightforward manner without contextual detail may be at lower risk of a disparity in care,[3] but the problems that older women bring to encounters—consensual decision-making styles, abuse histories, involved social obligations, multiple symptoms, and an appearance of emotionality—do not appear to have changed among young women.[42–44,46,49,60] Of all age groups, young women appear the least likely to share information about major emotional disturbances with their physicians.[44] Middle-aged women have been observed to ask more questions, initiate more topics of concern, receive more physician encouragement, and enjoy a more egalitarian interaction with their physicians than women in other age groups.[62,63,102,103]

Another possible explanation for the diagnosis and treatment disparity might be payer status. Women are more likely than men to use Medicare of Medicaid (27% vs 20%), but men are more likely to have no insurance (18% vs 13%).[44] Although people needing care who have Medicaid or are without health insurance are more likely to be hospitalized for avoidable hospital conditions than are patients with private insurance,[104] approximately 40% of women and 38% of men[44] *either* use Medicaid or have no insurance. Consequently, if payer status were driving avoidable hospitalization rates, then women and men would have an equal likelihood of being hospitalized. Furthermore, women belong to HMOs in equal numbers with men, and HMO membership has been found to increase the likelihood that a patient with acute chest pain, for example, would be hospitalized, particularly in low-risk and medium-risk cases.[105] We did not discern any consistent pattern of association between payer status and gender bias in care in the reviewed studies, which include public clinics, private practices, and HMOs, although this issue warrants more examination.

A final comment involves the current debate over the efficacy of the high rate of invasive procedures for men, primarily among cardiac patients.[2,80,106] The possibility exists that a combination of preventive care, which women are more likely to practice than are men,[107–111] higher primary care utilization, and lower rates of invasive procedures could constitute sufficient treatment for a larger percentage of male patients than is currently the case. Men with a low probability of life-threatening cardiovascular conditions might profit from less aggressive therapeutic procedures, but this has not yet been ascertained by research. The complexity of the misdiagnoses problem argues against consideration of overtreatment of male patients as the central issue in gender bias, although it may contribute. The variety of disorders and diseases in which misdiagnoses have been reported indicates a more systemic problem within medicine.

The evidence that a gender bias in diagnosis and treatment exists is considerably stronger than the evidence that such a bias does not exist. However, the bias appears more likely to emerge during the early stages of patient

management than during later stages. Furthermore, male and female patients differ in their communicative patterns. The manner in which women communicate their symptoms appears to reinforce a general tendency to attribute women's behavior to emotional concerns. The findings of the AMA Task Force on Gender Disparities in Clinical Decision-Making also identified the attribution of women's symptoms to emotional reactions as the primary reason for bias against them in diagnosis and treatment.

Research is needed that examines several aspects of both the early and later stages of patient management to isolate when the bias manifests and under what conditions. Diseases with standardized diagnostic and treatment protocols, such as respiratory diseases, lung cancer, or kidney diseases, should be examined as well as ambiguous problems such as headache or gastrointestinal pain: different categories of illnesses may show different patterns of bias, or no bias. Research matching men and women on socioeconomic measures, payer status and type, severity of complaint, and length of physician-patient relationship is needed to determine if women require more visits to receive care for their illnesses or diseases than do men. The presentations of women must be examined more carefully to determine what factors are associated with misdiagnoses, or underdiagnoses: is sex alone sufficient to precipitate an assumption of overanxiousness, or do diagnoses vary with the degree of emotion accompanying the symptoms? Do the logical and statistical biases in clinical decision making, already documented among both resident and senior physicians,[112] occur more frequently when the patient is a woman, particularly an affectively expressive woman? Can gender disparity in diagnosis and treatment be attributed equally to male and female physicians, or are cross-gender encounters more vulnerable to perceptual biases, e.g., a female physician and a male patient.

In terms of practical application, physicians can reduce the bias by reminding themselves that a gender bias in decision making can occur. In a task-oriented situation, being aware of the potential implications of gender differences in verbal and nonverbal behavior may substantially reduce the emotionality bias that attaches to women's symptom presentations.[71,74,113] In the long term, continued exploration of gender differences in communication and clinical decision making will clarify the extent to which communication has diagnostic and treatment implications for all areas of care.

This work was supported by the National Institute of Mental Health (1 R01 MH 47536) and the Health Resources and Services Administration (5 D28 PE 19154), and by a Chancellor's Fellowship, Regents of the University of California.

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