HIV Providers' Perceptions of and Attitudes Toward Female Versus Male Patients

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Abstract

As a first step in understanding the role that health care providers may play in observed gender disparities in HIV care in the United States, we sought to examine whether HIV providers' perceptions of and attitudes toward female and male patients differ. We used data from the Enhancing Communication to Improve HIV Outcomes (ECHO) study, a multisite, cross-sectional study focused on the role of the patient-provider relationship in disparities in HIV care conducted from October 2006 to June 2007. Using separate scales, we assessed HIV providers' perceptions about their patients (e.g., intelligence, compliance, responsibility) as well as providers' attitudes toward their patients (e.g., like, respect, frustrate). We used multivariable linear regression with generalized estimating equations to compare provider scores for female and male patients. Our sample comprised 37 HIV providers and 317 patients. Compared with male patients, HIV-infected females were less likely to be highly educated or employed, and more likely to report nonadherence to antiretroviral medications and depressive symptoms. In unadjusted and adjusted analyses, there was a significant difference in providers' perceptions of female and male patients, with providers having more negative perceptions of female patients. However, there was no significant difference in HIV providers' attitudes toward female and male patients in unadjusted or adjusted analyses. Further study is needed to elucidate the role of providers' perceptions and attitudes about female and male patients in observed gender disparities in HIV care.

Introduction

WOMEN REPRESENT A sizable, yet vulnerable minority among persons infected with the human immunodeficiency virus (HIV) in the United States. HIV-infected women account for about one quarter of persons living with HIV and have a unique set of health needs.^{1–5} HIV-infected women are disproportionately African American and affected by poverty and its attendant consequences such as limited access to quality medical care.^{1,2}

Accumulating evidence has highlighted gender disparities in the receipt and quality of HIV care. As compared with HIV-infected men, HIV-infected women are less likely to utilize

HIV care^{6,7} and to receive clinically indicated antiretroviral medications when they do seek care.^{8–11} Furthermore, studies indicate that HIV-infected women have greater HIV-related morbidity¹² and all-cause mortality¹³ compared with their male counterparts, disparities which are not primarily explained by biologic differences.

A confluence of factors likely contributes to observed HIV-related gender disparities in the United States. One area of interest is whether provider bias contributes to these disparities. Prior research in non-HIV care settings suggests that providers' perceptions of patients can affect the care patients receive.^{14–16} With respect to HIV care, evidence indicates providers' perceptions of patients may play a role in

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providers' beliefs about patients' level of adherence and the subsequent provision of antiretrovirals.^{17,18}

HIV providers may have different attitudes toward female and male patients for several reasons. Accounting for a minority of HIV-infected persons, women are often seen in clinical settings that are typically accustomed to providing care to largely male patient populations. Studies also indicate that HIV-infected women are less likely to be employed or to be highly educated compared with their male counterparts.¹⁹ Although not a consistent finding, a number of studies have found HIV-infected women have lower rates of antiretroviral medication adherence.^{20–22}

Few studies have examined potential differences in provider's perceptions of and attitudes toward female and male patients. One study found patient gender was not associated with HIV providers' judgments of antiretroviral adherence,¹⁷ while another concluded that physician attitudes likely contribute to delays in women's receipt of antiretroviral therapy.¹⁸ However, these studies have been limited to assessing providers' specific beliefs about a patient's ability to adhere to antiretroviral medications. A more thorough and global assessment of HIV providers' perceptions of and attitudes toward female and male patients is lacking. To investigate the possibility that HIV providers' may have more negative perceptions of and attitudes toward female than male patients, we sought to examine the association between patient gender and HIV providers' perceptions of and attitudes toward patients and, secondarily, whether this association was modified by provider gender.

Methods

Study design, subjects, and setting

We used data from the Enhancing Communication to Improve HIV Outcomes (ECHO) study, a multisite study designed to assess how patient-provider communication may contribute to racial and ethnic disparities in HIV care. HIV care providers and their patients were surveyed at four outpatient clinic sites (Baltimore, Maryland; Detroit, Michigan; New York, and Portland, Oregon) between October 2006 and June 2007. The study received Institutional Review Board approval for all study procedures from each of the four participating sites. Because data on the outcomes of interest for this specific study were incomplete for one site, our analysis includes data from three of the four participating sites for which data were complete.

Eligible providers were physicians, nurse practitioners, or physician assistants who provided primary care to HIV-infected patients at one of the study sites. Forty-seven providers were eligible to participate in the ECHO study, 37 (79%) providers enrolled.

Eligible patients were HIV infected; 19 years or older; English-speaking; and had at least one prior visit with their provider. The goal was to enroll 10 patients per provider. Five hundred nineteen patients were eligible to participate and 344 (66%) patients enrolled. Given that gender was our independent variable of interest, participants with missing data for gender ($n=4$) were excluded. Also, participants with missing data for all items of the scales used to measure providers' perceptions of and attitudes toward the patient (the study outcome) were excluded ($n=20$). Since we planned a test of the interaction of patient gender and provider gender, we

excluded participants with missing provider gender information ($n=1$). We excluded participants with completely missing data ($n=2$). Our final sample comprised 317 patients.

Data collection methods

HIV providers who agreed to participate gave informed consent and completed a questionnaire at baseline and after the patient encounter. Research assistants approached patients of participating providers in clinic waiting rooms. Eligible patients gave informed consent. Following the medical encounter, research assistants administered a 1-h interview with patients, assessing demographic and behavioral characteristics, as well as their experience of care and ratings of provider communication. Finally, research assistants abstracted clinical data including medication regimens, most recent CD4 T-lymphocyte count, and HIV viral load from patients' medical records.

Main measures

Patient gender. The primary independent variable for our analysis was self-reported patient gender (female or male). Participants identifying as transgender male were classified as male and those identifying as transgender female were classified as female. In our study sample, only one participant, a transgender male, self-identified as transgender.

Providers' perceptions of and attitudes toward patient. Our outcome variables, providers' perceptions of and attitudes toward the patient, were assessed in a post-encounter questionnaire using the following two scales: (1) Assessment of Patient Personality Characteristics and (2) Assessment of Positive Regard, respectively. The Assessment of Patient Personality Characteristics, a 9-item scale, assesses a provider's perceptions of a patient based on nine different personality characteristics: intelligence, compliance, pleasantness, assertiveness, responsibility, rationality, directness, and perceived level of education.²³ This scale asks the provider to give an objective evaluation of the patient across these nine domains. Using our study sample, the Cronbach α for the Assessment of Patient Personality Characteristics scale was 0.80. The scale has been validated as a measure of providers' perceptions and has been found to be associated with patient race and socioeconomic status.²³ Responses are on a 7-point scale that rates the strength and direction of the attribute. We reversed the scoring of the original scale so that a more positive perception of the patient was associated with a higher score: 1 (e.g., unintelligent) to 7 (e.g., intelligent). Using items from existing scales, the Assessment of Positive Regard, a novel 7-item scale, was developed.^{24–26} This scale asks the provider to evaluate his or her own attitudes toward a patient in comparison to other patients; for example, "Compared to other patients, I like this patient". Responses are on a 5-point Likert scale (1=strongly agree to 5=strongly disagree). By using "I" in the wording of the question as well as using a comparison to other patients, this scale elicits a more subjective assessment of the provider's attitudes toward a patient. We reversed scoring for this scale's items, except for the one negative item ("Compared to other patients, this patient frustrates me."), such that a more positive attitude toward the patient corresponded to a higher score. Using our study sample, the Cronbach's α for the Assessment of Positive Regard scale was

0.80. For each patient, we calculated a mean score for each of the two scales. If a data value was missing, we averaged the remaining items.

Covariates. Patient sociodemographic variables included age, self-reported race/ethnicity (white, black, Hispanic, other), level of education (high school degree versus no high school degree), and employment status (employed versus unemployed). Health literacy was measured using the REALM test (score 0 to 60) with a higher score indicating a higher level of health literacy. Patient clinical variables were CD4 cell count (≤ 200 cells/mm³ versus > 200 cells/mm³), HIV RNA viral load (≤ 75 copies per milliliter versus > 75 copies per milliliter), receipt of antiretroviral medications, antiretroviral adherence in the last 3 days (100% versus $< 100\%$), active substance and/or alcohol abuse, and presence of at least one comorbid medical condition. Degree of depressive symptoms was measured using the CES-D10 score (0 to 30), with a higher score indicating more depressive symptoms. Duration of patient-provider relationship was modeled as less than 3 months, 3 months to 1 year, greater than 1 year to 5 years, and greater than 5 years. Provider variables included age, self-reported race/ethnicity (white, black, Hispanic, Asian, other), gender, and profession (physician versus nonphysician).

Data analysis

First, we compared sociodemographic and clinical characteristics of female and male patients using χ^2 tests, Student *t* tests, and Wilcoxon rank sum tests, as appropriate. Second, we assessed the association between patient gender and providers' perceptions and attitudes in two ways. We first evaluated the association between patient gender and each individual item of the Assessment of Patient Personality Characteristics and Assessment of Positive Regard using Student *t* test. *p* values were adjusted for clustering by site and by provider. Next, we assessed the association between patient gender and providers' perceptions and attitudes using each of the two scales. To this end, we created two models, one for each scale, using linear regression with generalized estimating equations to calculate the difference in mean scores between female and male patients, adjusting for covariates and accounting for clustering by site and by provider. The distribution of our two outcomes supported the use of linear regression. In multivariable analyses, we adjusted for all prespecified sociodemographic and clinical variables. Unadjusted and adjusted differences in mean scores between female and male patients (β) are presented with associated 95% confidence intervals. To assess whether or not the association between patient gender and providers' perceptions and attitudes was modified by provider gender, an interaction term was included in each model. Statistical analyses were performed using SAS 9.2 (SAS Institute, Inc., Cary, NC).

Results

Table 1 shows the comparison of sociodemographic and clinical characteristics between female and male patients. Female patients were more likely to be Black (74.0% versus 59.1%, $p=0.03$) and less likely to have a high school degree (58.0% versus 76.8%, $p<0.001$) or to be employed (16.0% versus 30.8%, $p=0.003$) compared with male patients. Women

had higher depressive symptom scores (12.8 versus 11.5 of 30, $p=0.01$) and were less likely to be adherent to antiretroviral medications (74.7% versus 85.4%, $p=0.04$). There was no significant difference between female and male patients with respect to other sociodemographic and clinical characteristics.

Table 2 demonstrates the association of patient gender and providers' perceptions and attitudes using individual items of Assessment of Patient Personality Characteristics and Assessment of Positive Regard, respectively. There were no significant association between patient gender and each of seven items of the Assessment of Positive Regard except for the "frustrate" item; on average, providers were more likely to report feeling more frustrated by female patients than male patients. Among the items on the Assessment of Patient Personality Characteristics, 6 of 9 were significantly associated with patient gender. Providers perceived female patients as significantly less educated, rational, responsible, compliant, independent, and direct as compared with male patients. There was no significant difference by patient gender with respect to perceived intelligence, pleasantness, or assertiveness.

Table 3 shows the association between patient gender and providers' perceptions of and attitudes toward patients. With respect to the Assessment of Patient Personality Characteristics, we found mean scores for female patients were significantly lower than male patients both in unadjusted analysis ($\beta -0.32$, 95% CI, -0.55 to -0.12) and after adjusting for all prespecified covariates ($\beta -0.24$, 95% CI, -0.43 to -0.05). For the Assessment of Positive Regard, there was no significant difference in mean scores between female and male patients in unadjusted or adjusted analyses. We found no significant interaction of patient gender and provider gender on providers' perceptions using the Assessment of Patient Personality Characteristics ($p=0.92$) and the Assessment of Positive Regard ($p=0.97$). In analysis stratified by provider gender (not shown), we found no significant difference in the difference in mean scores providers gave to female and male patients.

Discussion

As a first step in attempting to understand the potential role of health care providers in gender disparities in HIV care, we sought to determine whether or not HIV providers have more negative perceptions of and attitudes toward female patients compared to male patients. In our study, compared with male patients, female patients were more likely to be black and to report nonadherence; they were also less likely to have a high school degree or to be employed. Using the Assessment of Patient Personality Characteristics, which assesses providers' perceptions, we found a modest but significant association between patient gender and HIV providers' perceptions, such that HIV providers had more negative perceptions of the personality characteristics of female compared with male patients, even after adjustment for potential confounders. Using the Assessment of Positive Regard, which evaluates providers' attitudes, we found no significant difference between providers' attitudes toward female and male patients. Using both scales, we found that the association between patient gender and providers' perceptions and attitudes did not appear to be modified by provider gender.

Our study findings contribute to the paucity of literature on the potential role of health care providers in HIV-related

TABLE 1. PATIENT AND HIV PROVIDER CHARACTERISTICS, BY PATIENT GENDER

	<i>Female patient (n = 119)</i>	<i>Male patient (n = 198)</i>	<i>p Value</i>
Patient characteristics			
Age (years)	45.7 (8.4)	47.0 (9.3)	0.20
Race/ethnicity, <i>n</i> (%)			0.03
White	15 (12.6)	48 (24.2)	
Black	88 (74.0)	117 (59.1)	
Hispanic	10 (8.4)	25 (12.6)	
Other	6 (5.0)	8 (4.0)	
High school degree, <i>n</i> (%)	69 (58.0)	152 (76.8)	< 0.001
REALM score, median (IQR)	63 (56–66)	64 (58–66)	0.82
Employed, <i>n</i> (%)	19 (16.0)	61 (30.8)	0.003
Comorbidity, <i>n</i> (%)	73 (61.3)	113 (57.1)	0.45
Depressive symptoms score, mean (SD)	12.8 (4.6)	11.5 (4.1)	0.01
Active drug use, <i>n</i> (%)	26 (21.9)	52 (26.3)	0.38
Active alcohol use, <i>n</i> (%)	6 (5.0)	16 (8.1)	0.30
CD4 < 200 cells/mm ³ , <i>n</i> (%)	28 (23.5)	48 (24.2)	0.89
HIV RNA < 75 copies/mL, <i>n</i> (%)	49 (43.0)	97 (51.1)	0.17
On ARVs, <i>n</i> (%)	91 (76.5)	158 (82.7)	0.18
Adherent to ARVs, <i>n</i> (%) ^a	68 (74.7)	135 (85.4)	0.04
Length of provider–patient relationship, <i>n</i> (%)			0.41
Less than 3 months	5 (4.2)	5 (2.5)	
3 months to 1 year	18 (15.1)	29 (14.7)	
1–5 years	51 (42.9)	102 (51.8)	
> 5 years	45 (37.8)	61 (31.0)	
Provider characteristics			
Female, <i>n</i> (%)	74 (62.2)	120 (60.0)	0.78
Male, <i>n</i> (%)	45 (37.8)	78 (39.4)	
Age, years	42.9 (8.7)	44.6 (8.8)	0.09
Race/ethnicity, <i>n</i> (%)			0.10
White	65 (54.6)	126 (63.6)	
Black	15 (12.6)	9 (4.6)	
Hispanic	1 (0.8)	3 (1.5)	
Asian	32 (26.9)	51 (25.8)	
Other	6 (5.0)	9 (4.6)	
Nonphysician, <i>n</i> (%)	36 (30.3)	58 (29.3)	0.86

^aAdherent to 100% of prescribed antiretroviral medications in the last 3 days.

% represent column percentages.

REALM score (literacy test): 0 to 66, higher score indicated increasing literacy.

Depression symptoms score is based on the CES-D scale: 0 to 30, higher score indicating more depressive symptoms.

SD, standard deviation; ARVs, antiretroviral medications; IQR, interquartile range.

gender disparities. Prior research about non-HIV providers suggests that providers may have more negative perceptions of female patients' personalities compared with male patients and that these differences in perceptions have the potential to affect care provided.^{27–29} The few existing studies that explore the role of providers and gender differences in HIV care focus primarily on providers' beliefs about patients' ability to adhere to antiretroviral medications.^{17,18} However, our study specifically explored HIV providers' perceptions of and attitudes toward female and male patients across a wide range of personality traits and attributes using two novel scales. This approach allows for a more nuanced understanding of what potential differences in providers' perceptions may be based on and how these beliefs may contribute to differences in HIV care provided. Additionally, we were able to adjust for a number of potential confounding variables, such as level of health literacy, antiretroviral adherence, and depressive symptoms, which allowed for a more robust analysis.

Our mixed findings—a difference in HIV providers' perceptions of but not attitudes toward female and male

patients—may be a result of the two scales measuring similar but somewhat different phenomena. The Assessment of Patient Personality Characteristics, which measures providers' perceptions, asks for a more objective assessment of a patient's character, whereas the Assessment of Positive Regard, which evaluates providers' attitudes, measures the explicit knowledge of how the provider personally reacts to or feels about the patient. As a result, one possible reason for that we detected no significant difference in HIV providers' attitudes toward female and male patients may be that HIV providers' hold more negative attitudes toward female patients but are unaware of those attitudes, and thus do not report different feelings about the patient. Another potential explanation could be that HIV providers may be attempting to hide those attitudes and, therefore, respond with socially desirable answers. Third, it is possible that providers' attitudes ultimately do not affect how they "feel" about the patient with respect to the domains asked about in the Assessment of Positive Regard.

Prior research findings examining gender-based perceptions of and attitudes toward patients among providers have

TABLE 2. MEAN ITEM SCORES FOR THE ASSESSMENT OF PATIENT PERSONALITY CHARACTERISTICS AND THE ASSESSMENT OF POSITIVE REGARD, BY PATIENT GENDER

	Female patient (n=119)	Male patient (n=198)	p Value ^a
Assessment of Patient Personality Characteristics, mean (SD)			
Unintelligent (1)–Intelligent (7)	5.1 (1.1)	5.4 (1.1)	0.18
Unpleasant (1)–Pleasant (7)	5.9 (1.1)	6.0 (1.1)	0.36
Uneducated (1)–Educated (7)	4.5 (1.4)	5.1 (1.3)	0.007
Irrational (1)–Rational (7)	5.1 (1.3)	5.4 (1.3)	0.008
Irresponsible (1)–Responsible (7)	5.1 (1.5)	5.5 (1.3)	<0.001
Noncompliant (1)–Compliant (7)	5.0 (1.7)	5.5 (1.6)	0.002
Dependent (1)–Independent (7)	5.3 (1.3)	5.7 (1.3)	0.004
Indirect (1)–Direct (7)	5.2 (1.5)	5.7 (1.3)	0.003
Passive (1)–Assertive (7)	5.0 (1.3)	5.2 (1.3)	0.12
Assessment of Positive Regard, mean (SD) (1–5, strongly disagree–strongly agree)			
Respect for patient	4.1 (0.8)	4.2 (0.8)	0.87
Like patient	4.2 (0.7)	4.3 (0.8)	0.62
Patient interesting	4.1 (0.8)	4.1 (0.9)	0.87
Easy to understand patient	4.1 (0.9)	4.1 (0.9)	0.85
Patient makes me feel glad	3.9 (0.8)	4.1 (0.8)	0.58
Friends with patient	3.0 (1.1)	3.2 (1.1)	0.28
Patient frustrates me	2.2 (1.2)	1.9 (1.1)	0.02

^ap values adjusted for clustering by site and by provider.
SD, standard deviation.

also been mixed. Hall et al.²⁸ found providers considered female patients less likable than male patients, after controlling for a number of demographic variables. Another study, which used simulated patient encounters, found that providers considered women to be more emotionally labile and tended to attribute female patients' complaints more often to psychosomatic etiology than those of male patients²⁷; however, providers expressed that they did not find female patients more burdensome and believed they treated female and male patients equitably. Differing findings across studies may be due to differences in the study design and survey tools used to assess providers' perceptions and attitudes. However, our finding that the association between patient gender and providers' perceptions and attitudes was not modified by provider gender appears to be consistent with prior studies, although, these studies may be limited by the number of female providers in their samples.^{27,28}

Our study has several limitations. First, perceptions of and attitudes toward individuals can be challenging and complex to measure, and consequently, there exists no gold standard for evaluating providers' perceptions of and attitudes toward

a patient. It is possible that other instruments or approaches may have yielded different results with respect to whether or not HIV providers' perceptions of and attitudes toward patients vary by patient gender. Second, this is the first time the Assessment of Positive Regard scale has been used. However, this scale was developed by experts in the patient–provider relationship and the scale's items have good internal consistency. Third, there were objective differences between female and male patients that providers likely recognized such as education and adherence; therefore, some of the differences that providers perceived should not necessarily be construed as bias. Nevertheless, measures such as how rational the patient is, demonstrate a subjective judgment on part of the provider. We did control for a host of potential differences between female and male patients, however, the possibility of residual confounding remains. Fourth, although, we found statistically significant differences in HIV providers' perceptions of female and male patients, the clinical significance of this finding is unclear. Nonetheless, gender disparities in HIV care exist and further research is needed to elucidate the actual impact of provider' perceptions and attitudes on patient care.

TABLE 3. MEAN TOTAL SCORES FOR THE ASSESSMENT OF PATIENT PERSONALITY CHARACTERISTICS AND THE ASSESSMENT OF POSITIVE REGARD, BY PATIENT GENDER

	Female patient (n=119)	Male patient (n=198)	Unadjusted β (95% CI)	Adjusted β^a (95% CI)
Assessment of Patient Personality Characteristics mean (SE)	5.12 (0.11)	5.46 (0.10)	−0.32 (−0.55 to −0.11)	−0.24 (−0.43 to −0.05)
Assessment of Positive Regard mean (SE)	3.86 (0.09)	3.95 (0.08)	−0.09 (−0.25 to +0.08)	−0.09 (−0.24 to +0.08)

^aAdjusted for all covariates in Table 1 and clustering by site and provider.

Male patients are the reference group.

Assessment of Patient Personality Characteristics: mean scores range from 1 (negative) to 7 (positive).

Assessment of Positive Regard: mean scores range from 1 (negative) to 5 (positive).

CI, confidence interval; SE, standard error.

Last, we may have lacked sufficient power to detect an important interaction between patient and provider gender. However, in stratified analysis, there were no significant differences in perceptions of and attitudes female and male patients based on provider gender.

Given our study findings, we believe the potential role of providers' perceptions and attitudes in contributing to gender disparities in HIV care merits further study. Implicit bias testing, which has been used with regard to exploring the role of health care providers in racial and ethnic disparities in health care outcomes, represents an approach to examining biases HIV providers may have toward patients of which the providers themselves are unaware and that have the potential to affect care provided.^{30,31} Differences in providers' perceptions and attitudes may be rooted in differences in style of communication. Studies have noted that female and male patients have different styles of communicating and it is unknown how differences in communication style may have affected HIV providers' perceptions of female and male patients. For instance, female patients often ask more questions since they tend to be more engaged in their care and may be more expressive than male patients.^{29,32,33} Providers' may react in varying ways to the differing communication styles of female and male patients. Additionally, whether or not patients perceive differences in providers' attitudes toward them would be important to ascertain since patient perceptions of providers' attitudes and intentions have implications for the patient-provider relationship including affecting trust and care-seeking behavior.

Our study found a modest but significant difference in HIV providers' perceptions of female and male patients with providers having more negative perceptions of female patients. However there was no significant difference in HIV providers' attitudes toward female and male patients. In light of existing gender disparities in HIV care, further research is needed to elucidate the potential role of providers, and, specifically, their perceptions of and attitudes toward patients, in observed gender differences in care and clinical outcomes.

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Author Disclosure Statement

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