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Patient and Provider Comfort Discussing Substance Use

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BACKGROUND AND OBJECTIVES: Substance use is a prevalent issue in primary care with wide-reaching implications, particularly for the care of HIV-infected patients. This analysis identified patient and provider characteristics associated with high comfort discussing substance use in HIV primary care clinics using multivariable logistic regression.

METHODS: A total of 413 patients and 44 providers completed surveys on their comfort discussing substance use. Additional independent variables from surveys included demographics, drug and alcohol use, self-efficacy, and activation for patients. Provider-level data included demographics, training, practice descriptors, and stress levels.

RESULTS: The majority of patients (76%) and providers (73%) reported high comfort. In multivariable analysis, patients with current problematic alcohol use or current drug use were half as likely to report high comfort compared to their non-substance-using peers. Higher patient self-efficacy and high levels of patient activation were independently associated with increased odds of high patient comfort. While provider-level characteristics were not associated with provider comfort, the types of patients a provider saw were. Namely, the proportion of patients on antiretroviral therapy was inversely associated with the odds of high provider comfort, whereas the proportion of patients with high patient activation was positively associated.

CONCLUSIONS: Patients likely to benefit from a discussion of substance use, those with current use, are the least likely to report comfort discussing that use. Interventions that increase patient activation or self-efficacy may also increase their comfort. This research guides future interventions to increase the prevalence of discussions on substance use.

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patients report discussing substance use with their provider.^{2,7} Provider reluctance to screen for substance use is unfortunate as patient-provider discussions are associated with decreased use and increased receipt of treatment for substance use disorders.^{2,8-12} Treatment improves the health of HIV-infected patients through improved ARV adherence, regular primary care visits, decreased hospital utilization, and improvement of common medical illnesses impacted by substance use (eg, liver disease).¹³⁻¹⁵

In previous studies, providers reported hesitation over correctly diagnosing substance abuse or providing resources to substance users.^{16,17} Providers also fear alienating their patients despite research to the contrary. Miller and colleagues found that more than 90% of patients support their provider screening for alcohol use.¹⁸ Recent studies identified providers with positive perceptions of their abilities as more likely to screen their patients with alcohol disorders.¹⁹ The quality of patient-provider communication is different between HIV-infected patients with problematic alcohol use than those

Previous work has shown 50%–75% of HIV-infected individuals used illicit drugs or had heavy alcohol use in the prior year.^{1,2} Illicit drug or alcohol use decreases antiretroviral (ARV) adherence, increases HIV disease progression,

and increases HIV transmission behaviors.³⁻⁶ HIV-infected patients with current drug use experience decreased health-related quality of life.²

Despite its prevalence and impact, fewer than half of HIV-infected

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with illicit drug use.¹⁹ Thus, provider perception of their own comfort and ability to discuss alcohol or drug abuse with their patients may be an important predictor of patients getting the treatment they need.

In ambulatory care settings, discussions of substance use are important yet often missed opportunities to improve the quality of health care. There is a paucity of literature on comfort when discussing substance use from the perspective of either the patient or the provider. Intuitively, high comfort discussing substance use would be associated with conversations regarding use, yet there is no previous research to support this. The purpose of this study was to assess patient and provider comfort discussing substance use in a primary care setting. We chose to conduct the study in HIV primary care practices where the consequences of substance abuse and the potential impact of patient-provider substance use discussions are great.

Methods

Study Sample and Data Collection

The Enhancing Communication and HIV Outcomes (ECHO) study was a cross-sectional study that investigated the impact of patient-provider communication on HIV-related clinical outcomes. Study methods have been published previously.²⁰ Briefly, patients and providers were recruited from four HIV primary care clinics in Baltimore, Detroit, New York City, and Portland, OR, from 2007–2008. Eligible physician, nurse practitioner, or physician assistant providers delivered primary care to HIV-infected patients. Providers completed baseline assessments and a brief after-visit questionnaire following each patient encounter. Participating providers completed informed consent and were provided with \$250 at the end of the study.

Patients were eligible if they were HIV-infected, 19 years of age or older, had at least one primary care visit in the last year, and spoke English.

Trained study personnel enrolled patients from the waiting room of participating clinics and conducted in-person interviews following the office visit. Participating patients completed informed consent and were provided with \$50 at the end of the study. Research assistants abstracted ARVs, CD4 count, and HIV-1 RNA viral load from patient medical records. Institutional Review Boards at each facility approved the study.

Outcome Measure

Participants responded to one (patients) or two (provider) questions assessing their comfort discussing substance use. Patients responded to “How comfortable do you feel telling your HIV provider about using drugs or alcohol?” with responses ranging from not at all comfortable to very comfortable (scale 1–4). Providers responded to two similarly worded questions: “Using the scale below, indicate your level of comfort discussing illicit drug use (alcohol use for second question) with patients” with responses again ranging from not at all comfortable to very comfortable (scale 1–5). Patient and provider comfort variables were dichotomized into a “high comfort” group consisting of individuals reporting the highest level of comfort for both alcohol and drugs and a “less than high comfort” group consisting of all other responses based on the distribution of responses.

Covariates

Patient Characteristics. Demographic characteristics included self-reported patient gender, race/ethnicity (white, Black, Hispanic, Other), age (years), employment status (yes/no), and educational attainment (\geq high school degree/GED). Other patient-related covariates included depression score on the 10-item Center for Epidemiologic Studies scale (CESD) (tertiles),²¹ patient activation (tertiles),²² and communication self-efficacy from the four-item communication subscale of the HIV Self-Efficacy Questionnaire.²³ High

communication self-efficacy was defined as a mean score of 10 versus <10 , based on score distribution.

Current problematic alcohol use was defined as at least one episode of drinking to intoxication in the past 30 days using items from the Addiction Severity Index-lite (ASI).^{24,25} Current drug use was defined as any use of heroin, cocaine, amphetamines, marijuana, or methadone without a prescription in the past 30 days using the ASI-lite.

Patient-reported duration of the patient-provider relationship was categorized as less than or greater than 5 years in duration. The length of the patient-provider encounter in minutes was obtained from audio-recordings. Each provider responded to the question “How would you describe your schedule today?” with responses ranging from “much busier than usual” to “slow” after each patient visit. The final variable was dichotomized into very busy versus less than very busy.

Provider Characteristics. Provider characteristics included self-reported gender, age, race/ethnicity (white/non-white), type of training (physician/midlevel provider), time spent caring for HIV-infected patients (greater or less than 20 hours per week), and any history of communication training (yes/no). Provider self-reported stress was assessed over the past month using a four-item instrument, dichotomized as highest stress tertile versus less than highest stress tertiles.²⁶ Physician busyness was assessed using the question “How would you describe your schedule today?” with responses ranging from “much busier than usual” to “slow” after each patient visit. The final variable was dichotomized into very busy versus less than very busy. The role of provider confidence on the impact of discussions on substance use was assessed by asking, “How confident are you that discussing substance use/abuse with your patients will make a difference in their future behavior?”

with responses dichotomized as very confident versus less than very confident.

Provider's Practice Characteristics. For each provider we estimated the characteristics of that practice by calculating the proportion of the provider's patients in the study for each characteristic (eg, the proportion of each provider's patients that were female, non-white, etc). We also calculated the proportion of office visits greater than or equal to the median length for each provider. These variables were scaled for ease of interpretation in final models to reflect the odds for a 10% change in proportion.

Analysis. We used descriptive statistics to report patient and provider characteristics by comfort level (high/less than high). Bivariate associations between independent variables and comfort were estimated using χ^2 analysis for categorical variables and two-sided t tests for continuous. The provider bivariate analysis utilized Fisher's exact test for cases where the expected cell count was less than five.

Multivariable model development started with a base model investigating the relationship of each independent variable to patient comfort while controlling for site and provider clustering alone (base model, column 1, Table 2). Then variables identified from bivariate analysis with a statistical significance of $P \leq .20$ and those identified based on *a priori* hypotheses were added. This created a full model from which likelihood ratio and Hosmer-Lemeshow goodness of fit tests were utilized to assess the relative importance of each variable in the model to create a final model.²⁷ Conceptually important variables were reintroduced into the final model regardless of likelihood ratio testing. In all multivariable models, site was included as a fixed effect variable to adjust for potential geographic clinical differences. Patient comfort models were

adjusted for clustering by provider using generalized estimation equations. All analyses were conducted on STATA (version 11.0, October 2009, StataCorp, College Station, TX).

Results

Participants. From 2006–2007, study personnel contacted 47 of 55 eligible providers with 45 agreeing to participate (meeting recruitment goals) and two refusing. Study personnel identified 617 eligible patients during clinic visits occurring. Provider discretion excluded 18 possible participants due to feeling too rushed ($n=12$), the patient was too sick ($n=5$), or the visit was only for return of lab values ($n=1$). Of approached subjects (599), 434 consented to participate and completed the study (72%). The most common reason for refusal to participate was lack of time to complete the interview (106 individuals).

For the current analysis, 21 additional patients were excluded: 17 for missing or incomplete audio-recordings, three for missing all substance use data, and one for missing demographic data, leaving a final analytic sample of 413 encounters. Additionally, one provider was excluded from the provider analysis as they only had a single patient participate in the study (final provider $n=44$).

The patient study sample was mostly male (65%), African American (59%), with a mean age of 45 years (standard deviation [SD]= 9.3, range 20–77 years) (Table 1). The majority were on antiretroviral therapy (77%) with their last CD4 count > 200 (80%). Current illicit drug use was reported by 27% of patients (predominantly marijuana use), with 9.5% reporting current problematic alcohol use. One third did not complete high school or obtain an equivalent degree.

Providers were evenly split by gender (57% female) with a majority of white race/ethnicity (68%) and a mean age of 44 years (SD=8.6) (Table 3). Three quarters of the providers were physicians.

The majority of patients (76%) and providers (73%) reported high comfort discussing substance use.

Associations With High Patient Comfort Discussing Substance Issues. In unadjusted analysis (Table 1), only 56% of current problematic drinkers reported high comfort compared to 78% of non-problematic or non-drinkers (X^2 , $P=.003$). Two thirds of patients with current drug use reported high comfort compared to 79% of patients without current drug use (X^2 , $P=.005$). Among patients reporting less than high comfort, 38% had used drugs in the past month, and 17% had consumed alcohol to intoxication in the past month.

Patients with high communication self-efficacy or high patient activation were more likely to report high comfort. Being on ARVs was strongly associated with high comfort, with 80% reporting high comfort compared to 65% of patients not on ARVs (X^2 , $P=.003$). Patients with greater depression symptoms were less likely to report high comfort (X^2 , $P=.010$). No provider characteristics were associated with high patient comfort discussing substance use.

In multivariable analysis (Table 2), patients reporting current drug or problematic alcohol use had lower odds of endorsing high comfort (aOR=0.46, 95% CI=0.28–0.77 for drug use, aOR=0.32, CI=0.15–0.66, for alcohol use) after adjusting for demographics, education, self-efficacy, patient activation, depression, ARV status, site, and clustering by provider. A patient on ARVs had twice the odds of reporting high comfort compared to a patient not on ARVs (aOR=2.15, 95% CI=1.18–3.40). Patients who did not graduate high school were half as likely to report high comfort compared to graduates (aOR=0.45, 95% CI=0.22–0.93). Female patients were twice as likely to report high comfort (aOR=2.05, 95% CI=1.13–3.72).

High patient activation was associated with increased odds of reporting high comfort (aOR=2.66, 95%

Table 1: Patient Participant Descriptors and Bivariate Associations With High Patient Comfort Discussing Substance Use*

	Overall n (%) or Mean (SD) Range	Patient Comfort		χ^2 or <i>t</i> test P Value
		Less Than High n (%) or SD)	High Comfort n (%) or SD)	
Overall	413 (100)	100 (24)	313 (76)	—
Patient characteristics				
Female	146 (35)	41 (41)	105 (34)	.175
Non-Hispanic white	99 (24)	28 (28)	71 (23)	.687
African American	244 (59)	56 (56)	188 (60)	
Hispanic	58 (14)	14 (14)	44 (14)	
Other	12 (3)	2 (2)	10 (3)	
Mean age (years) (range: 20–77)	45 (9)	45 (9)	46 (10)	.488
High school diploma/GED or above	294 (71)	77 (77)	217 (70)	.152
Currently employed	105 (25)	24(24)	81 (26)	.695
Center for Epidemiologic Studies Depression Scale (CES-D) Depression tertiles				.010
Lowest	160 (39)	26 (26)	134 (43)	
Middle	124 (30)	38 (38)	86 (27)	
Highest	129 (31)	36 (36)	93 (30)	
On antiretroviral therapy	314(78)	63 (66)	251 (81)	.003
CD4 count \geq 200	318 (80)	73 (79)	245 (80)	.880
Current problematic alcohol use	39 (10)	17 (17)	22 (7)	.003
Any current drug use	112 (27)	38 (38)	74 (24)	.005
High communication self-efficacy	250 (61)	41 (41)	209 (67)	<.001
Patient activation tertiles				.001
Low	146 (35)	48 (48)	98 (31)	
Medium	144 (35)	35 (35)	109 (35)	
High	123 (30)	17 (17)	106 (34)	
Patient duration with provider				.949
< 5 years	273 (66)	66 (66)	207 (66)	
\geq 5 years	139 (34)	34 (34)	105 (34)	
High physician busyness	141 (36)	33 (35)	108 (36)	.875
Substance use discussed at visit	164 (40)	41 (41)	123 (39)	.762
Mean visit length in minutes	24 (12)	27 (13.5)	23 (11.2)	.009
Provider characteristics				
Female	236 (57)	53 (53)	183 (58)	.336
Non-white	121 (29)	32 (32)	89 (28)	.495
White	292 (71)	68 (68)	224 (72)	
Mean age of provider	44 (8.2)	45 (8.2)	44 (8.2)	.413
Physician	299 (72)	80 (80)	219 (70)	.051
RN, NP, or PA	114 (28)	20 (20)	94 (30)	
>20 hours per week caring for HIV patients	198 (48)	53 (53)	145 (46)	.245
High physician stress	120 (29)	30 (30)	90 (29)	.811
History of communication training	276 (69)	59 (59)	217 (69)	.056
High confidence in prevention conversations	93 (23)	20 (20)	73 (23)	.489
High provider comfort discussing substance use	297 (72)	74 (74)	223 (71)	.594

* P values for categorical variables calculated using chi-squared tests, while two-sided *t* test was utilized for continuous variables

Table 2: Multivariable Associations of High Patient Comfort*

Correlates	Base Model Adjusted Bivariate OR (95% CI)	P Value	Final Model OR (95% CI)	P Value
Patient variables				
Gender				
Male	1.0	.192	1.0	.018
Female	1.38 (0.85–2.25)		2.05 (1.13–3.72)	
Race				
White	1.0	.480	1.0	.735
African American	1.40 (0.88–2.24)		1.29 (0.67–2.42)	
Hispanic	1.30 (0.53–3.19)		1.25 (0.41–3.76)	
Other	2.03 (0.44–9.39)		2.54 (0.36–17.96)	
Education				
Less than high school diploma	0.67 (0.37–1.24)	.202	0.45 (0.22–.93)	.031
Depression tertile				
1	1.0	.005	1.0	.201
2	0.45 (0.27–0.73)		0.65 (0.39–1.07)	
3	0.51 (0.29–0.91)		0.89 (0.49–1.61)	
On antiretroviral therapy (Reference=no)	2.15 (1.36–3.40)	.001	2.33 (1.18–4.6)	.015
Current problematic alcohol use (Reference=no)	0.32 (0.15–0.66)	.002	0.33 (0.15–0.72)	.006
Current drug use (Reference=no)	0.46 (0.28–0.77)	.003	0.52 (0.29–0.93)	.028
High communication Self-efficacy	2.90 (1.72–4.89)	<.001	1.96 (1.08–3.54)	.025
PAM tertile				
1	1.0	<.001	1.0	.037
2	1.56(0.95–2.57)		1.55 (0.81–2.95)	
3	3.12 (1.84–5.32)		2.66 (1.24–5.69)	
Length of visit (Odds for a 10 minute increase)	0.75 (0.61–.92)	.006	0.78 (0.64–0.99)	.015
Provider Variables				
Gender				
Male	1.0	.545	1.0	.314
Female	1.19 (.67–2.12)		1.41 (.72–2.74)	
Race				
White	1.0	.611	1.0	.927
Non-white	1.14 (0.69–1.90)		1.03 (0.57–1.87)	
Type of provider				
Physician	1.0	0.70	1.0	.087
Midlevel	1.91 (0.95–3.84)		2.17 (0.89–5.27)	
Communication training				
No	1.0	0.156	1.0	.859
Yes	1.49 (0.86–2.60)		0.94 (0.50–1.78)	

*Multivariable Model A reports the odds of high comfort for each independent variable while controlling for site and provider clustering. The Final Model includes all variables, as well as site and adjustment for provider clustering.

CI=1.24–5.69). Also, each 10-minute increase in the length of the patient's office visit was associated with nearly a quarter decrease in the odds of high comfort (aOR=0.78, 95% CI=0.64–0.99).

A sensitivity analysis limiting the multivariable analysis to only

those with current drug or alcohol use yielded similar results, though there was insufficient power to detect a difference in self-efficacy or patient activation due to the smaller sample size.

Associations With High Provider Comfort Discussing Substance Use. In unadjusted analyses, providers with high comfort were younger (40 versus 46 years, 2-sided *t* test, *P*=.025). All midlevel providers, compared to 65% of physicians, reported high comfort (Fischer's exact test,

Table 3: Provider Sample Descriptors and Bivariate Associations With High Provider Comfort Discussing Substance Use

	n (%)	Provider Comfort		P Value
		Less Than High Comfort Discussing Substance Use With Patients n (% or SD)	High Comfort Discussing Substance Use With Patients n (% or SD)	
Overall	44 (100)	12 (27)	32(73)	—
Provider characteristics				
Female	25 (57)	7 (58)	18 (56)	0.901
Non-white	14 (31)	5 (42)	9 (28)	0.390
White	30 (68)	7 (58)	23 (72)	
Mean age of provider (range 30–64)	44 (8.6)	40 (6.6)	46 (8.7)	0.032
Physician	34 (77)	12 (100)	22 (69)	0.041**
RN, NP, or PA	10 (23)	0 (0)	10 (31)	
>20 hours/week caring for HIV patients	18 (41)	3 (25)	15 (47)	0.303**
High stress	12 (27)	5 (42)	7 (22)	0.189
High physician busyness	21 (49)	4 (33)	17 (55)	0.310**
History of communication training	28 (64)	7 (58)	21 (66)	0.654
High confidence in prevention conversation	9 (20)	1 (8)	8 (25)	0.405**
Practice characteristics (Proportions of patients)				
	Mean (SD)			
Female patients	0.363 (0.19)	0.36 (0.2)	0.37 (0.2)	0.900
Non-white patients	0.769 (0.20)	0.74 (0.19)	0.78 (0.21)	0.546
Age ≥ 45 years	0.55 (0.22)	0.56 (0.19)	0.55 (0.23)	0.925
High school degree	0.72 (0.17)	0.62 (0.17)	0.75 (0.15)	0.015
Currently full- or part-time employed	0.25 (0.16)	0.20 (0.18)	0.27 (0.15)	0.228
Highest depression tertile	0.31 (0.14)	0.32 (0.16)	0.30 (0.14)	0.707
On anti-retrovirals	0.77 (0.18)	0.85 (0.17)	0.74 (0.17)	0.059
CD4 count <200	0.20 (0.12)	0.24 (0.12)	0.19 (0.12)	0.188
Current problematic alcohol use	0.09 (0.13)	0.12 (0.11)	0.08 (0.13)	0.386
Current drug use	0.26 (0.17)	0.27 (0.16)	0.26 (0.18)	0.864
High communication self-efficacy	0.61 (0.19)	0.58 (0.16)	0.62 (0.20)	0.583
Highest tertile of patient activation	0.31 (0.16)	0.25 (0.18)	0.33 (0.15)	0.184
Patients reporting knowing provider ≥ 5 years	0.33 (0.27)	0.23 (0.22)	0.37 (0.27)	0.129
Patients with a visit length >22 minutes (the median length)	0.49 (.32)	0.55 (0.36)	0.47 (0.31)	0.489
High patient comfort	0.78 (0.17)	0.77 (0.12)	0.77 (0.19)	0.857

P values for categorical variables calculated using chi-squared test (except (**) as Fischer's Exact Test for low expected cell value was used) and a two-sided *t* test was utilized for continuous variables.

$P=.041$). Providers with a greater proportion of patients with a high school degree (75% versus 62%, two-sided *t* test $P=.015$) and those with fewer patients on ARV (74% versus 85%, two-sided *t* test, $P=.059$) more frequently reported high comfort discussing patient substance use.

In multivariable analyses (Table 4), no provider characteristics were

associated with provider comfort. However, as a provider's proportion of patients on ARV increased, the odds of a provider reporting high comfort discussing substance use decreased (aOR: 0.38, 95% CI: 0.15 -- 0.97). As the proportion of patients in the highest patient activation tertile increased, so did the odds of a provider reporting high comfort

discussing substance use (aOR 2.87, 95% CI: 1.01-8.14).

Discussion

Patients and their providers must have the freedom to openly discuss substance use issues in primary care. There is scant research on factors influencing patients' decisions to discuss drug or alcohol use with their

provider and little on providers' comfort with substance use discussions. The current study demonstrates that, though self-reported comfort is high for both patients and providers, those most likely to benefit are least likely to be comfortable discussing substance use.

Patients reporting higher levels of communication self-efficacy, anti-retroviral use, and patient activation reported greater comfort, suggesting that interventions to improve communication and self-management skills might increase patient comfort discussing substance use in HIV primary care settings. Patients with current illicit drug or problematic alcohol use were independently less likely to report high comfort discussing with their provider.

Patient Comfort. Patients most likely to benefit from a discussion of their substance use were the least likely to report high comfort doing so. This is particularly important because patients who discuss substance use issues with their providers are more likely to receive

treatment, yet this occurs in only a minority of primary care visits.^{2,7}

Several potentially modifiable patient characteristics were independently associated with high patient comfort, suggesting potential targets for improving comfort. Patients with high communication self-efficacy, those receiving ARV, and those with high patient activation more frequently reported high comfort. Communication self-efficacy has been previously associated with high education level and younger age, yet interventions have shown improved self-efficacy across diverse groups primarily in participation in medical care.^{28,29} Patient-directed interventions to improve patient communication self-efficacy may facilitate comfort in communicating about substance use with their providers.

Patient activation is defined as the knowledge, skill, and confidence an individual has in managing his or her disease.²² Patients with higher levels of activation exhibit more optimal health behaviors and experience improved outcomes for patients with chronic illness such as diabetes and

heart disease.^{30,31} Patients reporting higher levels of patient activation in the current study had greater than a threefold increase in odds of reporting high comfort. Likewise, the only provider characteristic independently associated with provider comfort discussing substance use issues with their patients was the proportion of their patients with high patient activation, suggesting that greater activation may facilitate substance use dialogue for both patients and providers. Interventions that improve patient activation may increase patient and provider comfort discussing substance use.

Other patient characteristics independently associated with high comfort included female gender, receipt of ARV, and higher educational level. Patients without a high school diploma or GED were half as likely to report high comfort compared to someone with a high school diploma or higher, even after accounting for current substance use, depression, and demographics. The strong association between less educational attainment and decreased odds of high

Table 4: Multivariable Associations of High Provider Comfort

Correlates	Crude OR	Base Model Bivariate Associations Controlling for Site (aORs)	Final Model* (aORs)	P Value
Gender				
Male	1.0	1.0	1.0	
Female	0.92 (0.24–3.52)	1.12 (0.28–4.56)	1.42 (0.10–19.39)	.792
Provider race				
Non-Caucasian	1.0	1.0	1.0	
Caucasian	1.82 (0.46–7.28)	2.67 (0.52–13.78)	1.49 (0.11–19.93)	.765
Mean age of provider	1.10 (1.00–1.21)	1.10 (1.00–1.22)	1.08 (0.94–1.23)	.290
Highest stress group	0.39 (0.09–1.62)	0.39 (0.09–1.68)	0.40 (0.04–3.70)	.418
Practice characteristics (10% change in Proportion**)				
Female patients	1.02 (0.72–1.45)	1.05 (0.70–1.56)	1.60 (0.87–2.96)	.130
Non-white patients	1.11 (0.80–1.53)	1.15 (0.78–1.68)	1.79 (0.86–3.76)	.121
Patients with a high school degree	1.75 (1.08–2.84)	1.96 (1.09–3.54)	2.40 (0.96–5.97)	.061
Patients on ARV	0.67 (0.43–1.03)	0.67 (.43–1.04)	0.38 (0.15–0.97)	.043
Patients in the highest tertile PAM	1.35 (0.87–2.11)	1.40 (0.86–2.26)	2.86 (1.01–8.14)	.048

* Final model includes all correlates and controls for site.

** Odds ratios reflect a change in 10% of the proportion of patients with a given characteristic.

ARV—antiretroviral

PAM— Patient Activation Measure

comfort likely captures the greater health disparities experienced by individuals of lower socioeconomic status.³²

Also, this study observed an inverse relationship between visit length and patient comfort. Longer visits may be required to address the competing medical and social needs of a more complex patient (ie, worse HIV-related health, lower health literacy, or active drug use), which take priority over addressing potentially uncomfortable discussions of substance use. Yet length of patient-provider dialogue was shorter for patients with current and former unhealthy alcohol use compared with non-drinkers in one recent study and comparable for those with illicit drug use versus non-user.²⁰ Patients with long visits may be addressing other issues associated with discomfort talking about substance use (eg, medication adherence).

Provider Comfort. This study observed an inverse association between the proportion of patients on ARV that a provider sees and the provider's comfort discussing substance use.

Also, this study observed a positive association between the proportion of patients with the highest level of patient activation and provider comfort. Intuitively, a provider who sees a majority of patients who are highly activated or on ARV may feel more comfortable as their patients may be more engaged in their care or providers perceive their patients to have the skill set to try and make changes in their substance use.

Provider comfort discussing substance use is a novel research question without previous research on this specific topic. Related literature comes from patient-reported scoring of provider performance in the realms of general and HIV-specific communication.³³⁻³⁵ From Roter and Hall's systematic review of gender and patient-centered communication, one would hypothesize

that female providers would report greater comfort discussing substance use.³⁴ This is consistent with work from the patient perspective. In Wilson and Kaplan, patient-rated communication skills were higher for female providers.³⁵ However, the current study did not observe any independent association between provider gender and comfort.

Strengths and Limitations. As the largest study to date on patient or provider comfort discussing substance use, these findings inform future research by identifying patient and provider characteristics associated with comfort. These findings should be interpreted in light of several important limitations. First, the relatively small number of providers limits power to detect independent associations between provider characteristics and provider comfort as ECHO was powered to detect differences in patient-level characteristics. Using provider-level data, however, provides a unique insight that has often been overlooked in the literature. Second, the cross-sectional study design limits causal inferences between participant characteristics and their comfort. Prospective, controlled studies would help strengthen causal inference. Finally, the 28% of nonparticipants may have differed in activation or comfort from participants but overall our participation rate is in line with previous work in similar populations.^{36,37}

Conclusions

Connecting patients to drug or alcohol treatment often falls in the hands of primary care providers. This research identifies important correlates of patient and provider comfort that can inform future interventions to encourage medical providers to discuss substance use with their patients. Patients with current alcohol and drug use, in particular, reported little comfort discussing their use with their providers. Efforts to improve the patient-physician dyad in terms of comfort having

substance use discussions may improve referral of patients to the treatment they need.

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References

1. Sohlner NL, Wong MD, Cunningham WE, Cabral H, Drainoni ML, Cunningham CO. Type and pattern of illicit drug use and access to health care services for HIV-infected people. *AIDS Patient Care STDS* 2007;21 Suppl 1:S68-S76.
2. Korthuis PT, Josephs JS, Fleishman JA, et al. Substance abuse treatment in human immunodeficiency virus: the role of patient-provider discussions. *J Subst Abuse Treat* 2008;35:294-303.
3. Kalichman SC, Amaral CM, White D, et al. Prevalence and clinical implications of interactive toxicity beliefs regarding mixing alcohol and antiretroviral therapies among people living with HIV/AIDS. *AIDS Patient Care STDS* 2009;23:449-54.
4. Andersen R, Bozzette S, Shapiro M, et al. Access of vulnerable groups to antiretroviral therapy among persons in care for HIV disease in the United States. HCSUS Consortium. HIV Cost and Services Utilization Study. *Health Serv Res* 2000;35:389-416.
5. Carrico AW. Substance use and HIV disease progression in the HAART era: implications for the primary prevention of HIV. *Life Sci* 2010;88(21-22):940-7.
6. Turner BJ, Fleishman JA, Wenger N, et al. Effects of drug abuse and mental disorders on use and type of antiretroviral therapy in HIV-infected persons. *J Gen Intern Med* 2001;16:625-33.

7. Metsch LR, Pereyra M, Colfax G, et al. HIV-positive patients' discussion of alcohol use with their HIV primary care providers. *Drug Alcohol Depend* 2008;95:37-44.
8. Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. A randomized controlled trial in community-based primary care practices. *JAMA* 1997;277:1039.
9. Fleming MF, Manwell LB. Brief intervention in primary care settings: a primary treatment method for at-risk, problem, and dependent drinkers. *Alcohol Research & Health* 1999;23(2):128-37.
10. Ockene JK, Adams A, Hurley TG, Wheeler EV, Hebert JR. Brief physician- and nurse practitioner-delivered counseling for high-risk drinkers: does it work? *Arch Intern Med* 1999;159:2198.
11. Fleming MF, Manwell LB, Barry KL, Adams W, Stauffacher EA. Brief physician advice for alcohol problems in older adults: a randomized community-based trial. *J Fam Pract* 1999;48:378-84.
12. Whitlock EP, Polen MR, Green CA, Orleans T, Klein J, US Preventive Services Task Force. Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: a summary of the evidence for the US Preventive Services Task Force. *Ann Intern Med* 2004;140:557-68.
13. Turner BJ, Laine C, Yang CP, Hauck WW. Effects of long-term, medically supervised, drug-free treatment and methadone maintenance treatment on drug users' emergency department use and hospitalization. *Clin Infect Dis* 2003;37 Suppl 5:S457-S463.
14. Messeri PA, Abramson DM, Aidala AA, Lee F, Lee G. The impact of ancillary HIV services on engagement in medical care in New York City. *AIDS Care* 2002;14:15-29.
15. Kapadia F, Vlahov D, Wu Y, et al. Impact of drug abuse treatment modalities on adherence to ART/HAART among a cohort of HIV seropositive women. *Am J Drug Alcohol Abuse* 2008;34:161-70.
16. Johnson TP, Booth AL, Johnson P. Physician beliefs about substance misuse and its treatment: findings from a US survey of primary care practitioners. *Subst Use Misuse* 2005;40:1071-84.
17. Nygaard PN, Aasland OA. Barriers to implementing screening and brief interventions in general practice: findings from a qualitative study in Norway. *Alcohol Alcohol* 2011;46(1):52-60.
18. Miller PM, Thomas SE, Mallin R. Patient attitudes towards self-report and biomarker alcohol screening by primary care physicians. *Alcohol Alcohol* 2006;41:306-10.
19. Sharp L, Vacha-Haase T. Physician attitudes regarding alcohol use screening in older adult patients. *J Appl Gerontol* 2011;30:226.
20. Korthuis PT, Saha S, Chander G, et al. Substance use and the quality of patient-provider communication in HIV clinics. *AIDS Behav* 2011;15:832-41.
21. Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). *Am J Prev Med* 1994;10:77-84.
22. Hibbard JH, Stockard JS, Mahoney ERM, Tusler MT. Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health Serv Res* 2004;39(4 Pt 1):1005-26.
23. Shively M, Smith TL, Bormann J, Gifford AL. Evaluating self-efficacy for HIV disease management skills. *AIDS Behav* 2002;6:371-9.
24. McLellan TM, Cacciola JC, Carise DC, Coyne. *Addiction Severity Index-Lite*. 1999.
25. Cacciola JS, Alterman AI, McLellan AT, Lin YT, Lynch KG. Initial evidence for the reliability and validity of a "lite" version of the Addiction Severity Index. *Drug Alcohol Depend* 2007;87:297-302.
26. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav* 1983;24:385-96.
27. Hosmer DW, Lemeshow S. *Applied logistic regression*. New York: Wiley-Interscience, 2000.
28. Street RL. Information-giving in medical consultations: the influence of patients' communicative styles and personal characteristics. *Soc Sci Med* 1991;32:541-8.
29. Harrington J, Noble LM, Newman SP. Improving patients' communication with doctors: a systematic review of intervention studies. *Patient Educ Couns* 2004;52:7-16.
30. Hibbard JH, Mahoney ER, Stock R, Tusler M. Do increases in patient activation result in improved self-management behaviors? *Health Serv Res* 2007;42:1443-63.
31. Mosen DM, Schmittiel J, Hibbard J, Sobel D, Remmers C, Bellows J. Is patient activation associated with outcomes of care for adults with chronic conditions? *J Ambul Care Manage* 2007;30:21-9.
32. Shavers VL. Measurement of socioeconomic status in health disparities research. *J Natl Med Assoc* 2007;99:1013.
33. Sullivan LM, Stein MD, Savetsky JB, Samet JH. The doctor-patient relationship and HIV-infected patients' satisfaction with primary care physicians. *J Gen Intern Med* 2000;15:462-9.
34. Roter DL, Hall JA. Physician gender and patient-centered communication: a critical review of empirical research. *Annu Rev Public Health* 2004;25:497-519.
35. Wilson IB, Kaplan S. Physician-patient communication in HIV disease: the importance of patient, physician, and visit characteristics. *J Acquir Immune Defic Syndr* 2000;25:417-25.
36. Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DM, Powe NR. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann Intern Med* 2003;139(11):907-15.
37. Saha S, Komoaromy M, Keopsell TD, Bindman AB. Patient-physician racial concordance and the perceived quality and use of health care. *Arch Intern Med* 1999;159:997-1004.