

HIV Related Stigma among Healthcare Providers: Opportunities for Education and Training

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Abstract

Background: HIV-stigma can influence engagement in care and viral suppression rates among persons living with HIV (PLWH). Understanding HIV-provider level stigma and its associated factors may aid in development of interventions to improve engagement in care. **Methods:** We assessed HIV-related stigma, provider knowledge, and practices and beliefs among healthcare providers using an online survey tool. Generalized linear modeling was used to determine factors associated with HIV-stigma score. **Results:** Among 436 participants, the mean age was 42.3 (SD 12.3), 70% female, 62% white, 65% physicians, and 44% worked at an academic center. The mean HIV Health Care Provider Stigma Scale (HPASS) score was 150.5 (SD 18.9, total = 180 [higher score = less stigma]) with factor subscale scores of 67.1 (SD 8.2, total = 78) prejudice, 51.3 (SD 9.7, total = 66) stereotyping, and 32.1 (SD 5, total = 36) discrimination. Female sex and comfort with talking about sex and drug use had 4.97 (95% CI 0.61, 9.32) and 1.99 (95% CI 0.88, 3.10) estimated higher HPASS scores. Disagreement/strong disagreement versus strong agreement with the statement that PLWH should be allowed to have babies and feeling responsible for talking about HIV prevention associated with -17.05 (95% CI -25.96, -8.15) and -2.16 (95% CI -3.43, -0.88) estimated lower HPASS scores. **Conclusions:** The modifiable factors we identified as associated with higher HIV related stigma may provide opportunities for education that may ameliorate these negative associations.

Keywords

HIV, healthcare provider, stigma

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Background

The United States (US) Department of Health and Human Services launched the *End the HIV Epidemic: A Plan for America* with the goal to reduce the total number of new HIV infections by 90% in the US by the year 2030. A key component of this plan is to provide antiretroviral (ART) medications for all persons living with HIV (PLWH) and to achieve durable viral suppression among those affected by the virus.¹ Sustained viral suppression prevents HIV transmission and disease related morbidity.² However, only 66% of persons diagnosed with HIV in the US had a suppressed viral load in 2019.³ At the end of 2019, the overall rate of viral suppression among persons diagnosed with HIV in the District of Columbia (DC) was an

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estimated 69% with a 85% suppression rate among those considered engaged in care.⁴

HIV treatment successes and failures among PLWH can be influenced by multiple external factors.^{5–8} Social cognitive theory provides a theoretical framework to understand the social, environmental, and other external factors that influence human behavior such as motivation, learning, and self-regulation.⁹ These theories provide a construct to understand behaviors that affect HIV treatment outcomes and identify areas that can be influenced to positively enhance HIV services and health-seeking behaviors.¹⁰ External factors include interactions with the healthcare system and individual healthcare providers. Positive interactions with the healthcare system and engagement in care are associated with durable suppression among PLWH, and patient-healthcare provider interactions and relationships are key factors in patient engagement in care and

ART adherence.^{11–13} Respectful treatment by a healthcare provider and effective communication motivates patients to attend clinic appointments and results in patient physician satisfaction and trust in their physician.^{14,15} However, stigmatizing behaviors by healthcare providers can negatively affect patient and healthcare provider relationships and are associated with limited retention in care, under-utilization of HIV care services, and poor ART adherence.^{16–18} Understanding healthcare provider HIV related stigma remains a relevant public health challenge as stigmatizing behaviors persist among subsets of healthcare providers.¹⁹

It is with this background we aimed to identify external factors related to healthcare providers and the healthcare system that may contribute to engagement in care among PLWH and those seeking HIV prevention services. We evaluated HIV general knowledge, provider practices, beliefs, and stigma among healthcare providers in DC.

Table 1. Demographic Characteristics of Survey Respondents (Total N = 436).

Mean age (STD)	42.3 (12.3)
Mean years worked in healthcare (STD)	15.9 (11.6)
Sex at birth, N (%)	
Male	129 (29.6)
Female	303 (69.5)
Prefer not to answer	4 (0.9)
Race, N (%)	
White	270 (61.9)
Asian	81 (18.6)
Black/African-American	51 (11.7)
Other	20 (4.6)
Prefer not to answer	13 (3.0)
Native American/Pacific Islander	1 (0.2)
Ethnicity, N (%)	
Non-Hispanic	387 (88.8)
Other	21 (4.8)
Hispanic	16 (3.7)
Prefer not to answer	12 (2.8)
Sexual orientation, N (%)	
Heterosexual	393 (90.1)
Gay/Lesbian	21 (4.8)
Prefer not to answer	14 (3.2)
Bisexual	7 (1.6)
Other	1 (0.2)
Healthcare provider type, N (%)	
Physician	282 (64.7)
Nurse Practitioner	98 (22.5)
Physician Assistant	52 (11.9)
Midwife	4 (0.9)
Specialty Type, N (%)	
Non-procedural	197 (45.2)
Procedural	81 (18.6)
Missing	158 (36.2)
Current Practice Setting, N (%)	
Academic Center	193 (44.3)
Private Practice	94 (21.6)
Others	64 (14.7)
Community Care Clinic	51 (11.7)
Tertiary Care Center, Non-Academic	29 (6.7)
Public Health Department	5 (1.2)

Methods

Participants and Recruitment

We recruited licensed healthcare providers in DC via an electronic mail listserv of licensed providers maintained by the DC Department of Health (DOH). A single recruitment email was sent and the only requirement for study entry was DC medical licensure. All participants provided written informed consent and study was approved by the Georgetown University Medical Center Institutional Review Board (2018-1111). Consenting individuals completed an online questionnaire (8/2019 to 9/2019) and were offered a gift card as compensation. Our analysis was limited to physicians and mid-level providers (nurse practitioners, physician assistants, and midwives).

Survey and Measurements

Study participants completed a one-time online questionnaire which included questions on provider demographics and specialty/practice type, healthcare practices, and general HIV knowledge. The Health Care Provider HIV/AIDS Stigma Scale (HPASS), a 30 item questionnaire assessed on a 6-point Likert scale, evaluated HIV related stigma. The HPASS includes three subscales: prejudice, stereotyping, and discrimination. Among our population, the HPASS demonstrated strong internal consistency and reliability with a total scale Cronbach $\alpha = 0.887, 0.876, 0.878,$ and 0.890 for the prejudice, stereotyping, and discrimination subscales respectively as was demonstrated in other studies.²⁰ HIV general knowledge (Supplement 1) was assessed with 18 questions and survey respondents were given 1 point for each correct response, and total scores were summed.

Statistical Analysis

Descriptive statistics such as means and proportions described demographic characteristics of the study participants and their

Table 2. Participant Responses to Questions Regarding Practices, Beliefs, and Attitudes (Total N = 436)^a.

	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
I feel comfortable talking with my patients about their risk of acquiring HIV	10 (2.3)	40 (9.2)	182 (41.7)	171 (39.2)
I am comfortable talking with my patients about their injection drug use practices	20 (4.6)	65 (14.9)	191 (43.8)	127 (29.1)
Specialists trained in HIV prevention counseling are more appropriate for delivering HIV prevention services than are primary care providers	103 (23.6)	172 (39.5)	93 (21.3)	35 (8.0)
Primary-care provider delivered interventions are the most effective way to reduce the risk of HIV acquisition	11 (2.5)	49 (11.2)	227 (52.1)	116 (26.6)
I am not comfortable talking with my patients about their sex practices	140 (32.1)	175 (40.1)	69 (15.8)	19 (4.4)
Talking about safer sex with my patients is not my responsibility	169 (38.8)	153 (35.1)	59 (13.5)	22 (5.1)
Providing HIV prevention services for patients is not part of my clinical practice	119 (27.3)	97 (22.3)	123 (28.2)	64 (14.7)
People living with HIV should be allowed to have babies if they wish	4 (1.0)	18 (4.1)	142 (32.6)	230 (52.8)

^aPercentages are not equal to 100% due to missing values.

survey responses. Generalized linear modeling (PROC GENMOD) with normal distribution and identity link function were used to determine factors associated with total HPASS score as well as HPASS subscale scores (prejudice, stereotyping, discrimination). The multivariate model included variables with a 2-tailed P -value $<.05$ in the univariate model. The coefficient estimate and the 95% confidence interval and 2-tailed p -value are provided in the model results. SAS version 9.4 was used for all statistical analyses.

Results

A total of 501 individual providers consented for the survey, 470 started the survey, and 436 were physicians or mid-level providers. Participant background demographics are outlined in Table 1. The mean age of survey participants was 42.3 years (SD 12.3) and 70% ($n=303$) were female. The majority of participants self-identified as White at 62% ($n=270$) followed by 19% ($n=81$) Asian and 12% ($n=51$) Black.

Sixty-five percent ($n=282$) of respondents were physicians, 23% ($n=98$) nurse practitioners, 12% ($n=52$) physician assistants, and 1% ($n=4$) midwives. Forty-five percent ($n=197$) reported practicing in a non-procedural specialty and 36% ($n=158$) did not report specialty type. The most frequent reported specialty types were internal medicine at 10% ($n=41$) and pediatrics at 7% ($n=31$). Forty-four percent ($n=193$) of respondents worked at an academic center. The mean number of years worked in health care was 15.9 years (SD 11.6). Ninety-five percent of respondents had cared for a PLWH, and 44% ($n=192$) reported providing care for 50 or more PLWH. The mean general HIV knowledge score was 15.4 out of 18 (STD 1.2).

Study participants' responses to survey questions about practices, beliefs, and attitudes are summarized in Table 2. When asked about their current treatment practices, 81% ($n=352$) felt comfortable talking with patients about their risk of acquiring HIV, 72% ($n=315$) felt comfortable talking about sex practices, and 73% ($n=318$) felt comfortable talking

about injection drug use practices with patients. Forty-three percent ($n=187$) of survey respondents reported that HIV prevention services were not a part of their clinical practice and 19% ($n=81$) felt that talking about safer sex was not their responsibility. Seventy-nine percent ($n=411$) of study participants felt that primary care delivered interventions are the most effective way to reduce the risk of HIV acquisition and 63% ($n=275$) disagreed that specialists trained in prevention counseling are more appropriate for delivering HIV prevention service than primary care providers.

Ninety-four percent ($n=372$) of respondents believed that PLWH should be allowed to have babies if they wished. Participants that disagreed that PLWH should be allowed to have babies were older with a mean age of 48 years (SD 11) versus 41 years (SD 12), $P=.0157$, and worked longer in health care with a mean of 21 years (STD 12) versus 15 years (STD 11), $P=.0217$. There were no differences in gender identity, sexual orientation, race or provider type (physician vs mid-level providers) regarding agreement or disagreement with the statement that PLWH should be allowed to have babies if they wished. The total HIV general knowledge score of those that believed PLWH should not be allowed to have babies was 15 (SD 0.29) versus 16 (SD 0.06), $P=.0529$. Eighty-six percent ($N=19/22$) of those that disagreed that PLWH should be allowed to have babies answered correctly to the HIV general knowledge question regarding perinatal HIV transmission.

The mean HPASS score among survey respondents was 150.5 (SD 18.9, total = 180 with higher scores indicating less stigma) with factor subscale scores of 67.1 (SD 8.2, total = 78) for prejudice, 51.3 (SD 9.7, total = 66) stereotyping, and 32.1 (SD 5, total = 36) discrimination.

Generalized linear modeling determined factors associated with HIV related stigma scale score as outlined in Table 3. In multivariate analyses adjusted for age, years working in health-care, race, sex, practice setting, HIV general knowledge score, responsibility for providing HIV prevention care, comfort with talking about sex/drugs, talking about sex and drugs, and beliefs

about procreation among PLWH, female sex and greater comfort with talking about sex and drug use were associated with less HIV stigma and had 4.97 (95% CI 0.61, 9.32, $P = .0254$) and 1.99 (95% CI 0.88, 3.10, $P = .0004$) estimated higher total HPASS scores. Disagreement/strong disagreement versus strong agreement and agreement versus strong agreement with the statement that people living with HIV should be allowed to have babies were associated with more HIV related stigma with estimated -17.05 (95% CI -25.96 , -8.15 , $P = .0002$) and -13.91 (95% -18.49 , -9.33 , $P < .0001$) decreases in total HPASS scores. Participants who did not feel responsible for talking about HIV prevention also had more stigma with an estimated -2.16 (95% -3.43 , -0.88 , $P = .0009$) decrease in total HPASS score versus those that felt responsibility for talking about HIV prevention.

In addition, generalized linear modeling determined factors associated with HIV related stigma subscale scores of prejudice, stereotyping, and discrimination as outlined in Table 4. In adjusted multivariate analyses as described in the tables, female sex associated with less HIV related stereotyping and discrimination with 4.09 (95% CI 2.15, 6.04, $P < .001$) and 1.09 (95% CI 0.08, 2.10, $P = .0346$) higher HPASS subscale scores respectively. Comfort with talking about sex and drugs associated with less HIV related prejudice and stereotyping with 0.97 (95% CI 0.57, 1.37, $P < .0001$) and 0.59 (95% 0.10, 1.07, $P = .0174$) higher HPASS subscale scores. Higher HIV general knowledge associated with less HIV related prejudice with 0.66 (95% CI 0.03, 1.28, $P = .0391$) higher HPASS subscale scores. Self-reported Asian race associated with more HIV related prejudice and discrimination with -1.86 (95% CI -3.73 , -0.002 , $p = .0497$) and -1.71 (95% -2.89 , -0.53 , $P = .0045$) and lower HPASS subscale scores versus self-reported White race. Other reported race also associated with -1.85 (95%, -3.61 , -0.08 , $P = .0404$) lower discrimination HPASS subscale score versus self-reported White race. Participants who did not feel responsible for HIV prevention care had more HIV related stereotyping and prejudice with estimated -0.91 (95% -1.47 , -0.35 , $P = .0014$) and -0.51 (95% -1.00 , -0.08 , $P = .0222$) decreases in total HIV related stereotyping HPASS subscale score versus those that felt responsibility for talking about HIV prevention. Disagreement/strong disagreement or agreement versus strong agreement with the statement that people living with HIV should be allowed to have babies were associated higher HIV stigma related to prejudice, stereotyping, and discrimination with lower HPASS subscale across all categories.

Discussion

Our sample of licensed providers in DC demonstrated adequate technical HIV knowledge and levels of HIV related stigma were low in the cohort as compared to other populations where the HPASS was administered.^{21,22} However, there was evidence that stigma remained and was associated with modifiable factors including beliefs about HIV and procreation, feelings of responsibility for HIV preventative services, comfort with

topics related to sexual health and drug use, and general HIV knowledge. Some factors associated with stigma in our cohort including underlying beliefs and sex at birth may not be modifiable, but targeting key populations of healthcare providers for additional training may improve both individual and population level healthcare outcomes.

In our analysis, the respondents' answer to the question about procreation in PLWH was a strong predictor of more HIV related stigma as measured by the total HPASS score and was also reflected in the prejudice, stereotyping, and discrimination subscale scores. Mother to child transmission of HIV can be prevented with HIV treatment and the risk of sexual transmission of HIV from a partner with virologic suppression is very low.^{23,24} There are specific consensus recommendations for counseling and treatment of PLWH who wish to conceive and/or are currently expecting.² Thus, in this modern era of ART there is no scientific reason to deny reproductive choice to PLWH. Educating healthcare providers on HIV pathogenesis, transmission, and care of PLWH and pregnancy outcomes may improve knowledge and decrease HIV related stigma.

Provider stigma is unlikely to be solely driven by provider level knowledge deficits as 86% of those that disagreed that PLWH should be allowed to have babies knew that HIV transmission from mother to child is preventable. This suggests that gaps in knowledge only partially explain HIV-related stigma in this domain. There is limited data on physician and other healthcare provider attitudes and stigma regarding childbearing or procreation among PLWH; however, limited healthcare provider attention to reproductive decision making has been consistently reported in the literature.^{25,26} Further, physicians that had cared for PLWH were more likely to have positive attitudes toward pregnancy and fertility care among PLWH.²⁷ In the pre-ART era and early in the HIV epidemic, childbearing was generally discouraged among PLWH. Some of these attitudes may still persist and a more comprehensive understanding of HIV stigma as it relates to procreation in the modern ART era is needed.

Other factors associated with higher stigma in our cohort have implications for both PLWH and HIV prevention. A quarter of respondents felt uncomfortable with talking about sex or drug use and less than half felt that providing HIV prevention services should be part of their clinical practice. Further, these factors were associated with HIV-related stigma. Medical students are taught the components of sexual risk for infection when learning how to take a sexual history.²⁸ Understanding these risk factors, the epidemiology of HIV infection in local and national populations, and the components of HIV preventative care services may provide context to help healthcare providers understand HIV preventative care services needs and how these services are implemented. However, there may be a gap between learning these skills and implementing them in clinical care. Healthcare providers generally show poor documentation of sexual history during routine office visits.^{29,30} Reported reasons for not taking a sexual history include: sexual history was felt by the physician

Table 3. Factors Associated with HIV Related Stigma among Surveyed Healthcare Providers.

	Univariate			Multivariate		
	Estimate	95% CI	P-value	Estimate	95% CI	P-value
Age (years)	-0.25	[-0.41, -0.1]	.0015	-0.11	[-0.30, 0.09]	.2758
Years working in healthcare	-0.30	[-0.46, -0.14]	.0003	---	---	---
White	Reference	---	---	Reference	---	---
Black	0.58	[-5.32, 6.48]	.8471	6.83	[-0.68, 14.35]	.0745
Asian	-6.17	[-11.04, -1.30]	.013	0.47	[-4.64, 5.57]	.8581
Other	-3.76	[-10.97, 3.45]	.3066	-2.92	[-10.82, 4.97]	.4679
Sex at birth						
Male	Reference	---	---	Reference	---	---
Female	7.59	[3.61, 11.57]	.0002	4.97	[0.61, 9.32]	.0254
Prefer not to answer	11.43	[-9.84, 33.69]	.2922	16.23	[-3.38, 35.85]	.1047
Current practice setting						
Academic center	Reference	---	---	---	---	---
Tertiary Care Center, Non-Academic	2.12	[-5.18, 9.42]	.5697	-5.02	[-13.86, 3.82]	.2653
Private Practice	-4.42	[-9.35, 0.50]	.0782	0.84	[-4.83, 6.50]	.7718
Community Care Clinic	6.90	[1.03, 12.78]	.0213	-1.71	[-9.60, 6.19]	.6715
Other	2.40	[-3.14, 7.94]	.3960	2.08	[-3.79, 7.96]	.4870
Have cared for patients living with HIV						
Yes	Reference	---	---	---	---	---
No	-8.42	[-20.25, 3.41]	.1628	---	---	---
I don't know	-6.22	[-22.84, 10.40]	.4630	---	---	---
Total number of persons living with HIV you have cared for						
<50	Reference	---	---	---	---	---
50-100	0.36	[-4.34, 5.06]	.8810	---	---	---
>100	1.003	[-3.26, 5.27]	.6450	---	---	---
HIV General Knowledge Score	3.09	[1.54, 4.63]	<.0001	0.79	[-1.16, 2.74]	.4282
Asked about sex and drugs more often	0.65	[0.29, 1.02]	.0004	---	---	---
Comfort with talking about sex and drugs	2.86	[1.92, 3.80]	<.0001	1.99	[0.88, 3.10]	.0004
Feeling not responsible for providing HIV prevention care	-3.72	[-4.73, -2.71]	<.0001	-2.16	[-3.43, -0.88]	.0009
People living with HIV should be allowed to have babies if they wish.						
Strongly agree	Reference	---	---	---	---	---
Agree	-15.80	[-19.37, -12.24]	<.0001	-13.91	[-18.49, -9.33]	<.0001
Disagree & Strongly disagree	-20.17	[-27.63, -12.71]	<.0001	-17.05	[-25.96, -8.15]	.0002

to be non-relevant to the presenting complaint, embarrassment of the physician, inadequacy of physician training, and fear of offending patients.³¹ Training and education related to HIV risk assessment and prevention counseling influence healthcare worker behaviors with high risk patients, confidence in sexual history taking, and improvement in level of comfort discussing HIV prevention and risk factors.^{32,33} Knowledge and capacity deficits in these areas could also be potentially addressed by education and practice during medical training and beyond. This education may influence wider implementation of HIV prevention services and promote health care delivery to achieve the goal of ending the epidemic goals.³⁴

Other studies of HIV stigma in healthcare workers in Washington, DC evaluated both physician healthcare providers as well as support staff and noted stigmatizing behaviors in up to 66% of participants. Similar to our results, this group also noted that disagreement with the statement that PLWH would be allowed to have babies was associated with HIV related

stigma.³⁵ HIV related stigma was identified in DC, a city where healthcare providers historically have been required to periodically undergo education related HIV since 2012 with three hours of continuing medical education (CME) (D.C. Code § 3-1205.10 "HIV/AIDS Continuing Education Requirements Amendment Act of 2012").³⁶ However, the type of training/education related to HIV is not targeted and at the discretion of the provider. DC has one of the highest HIV prevalence rates of HIV in the country and the majority of providers in our cohort had provided medical care to someone with HIV.³⁷ In this setting, the majority of healthcare providers in DC should have a high level of HIV general knowledge and should be primed to provide care to PLWH. Despite these efforts stigma remains among providers in DC, but our findings suggest there remain modifiable HIV stigma related factors and knowledge deficits and comfort with specific topics related to HIV that may need to be addressed.

Our findings may not be representative of healthcare providers abroad or across other parts of the US where rates of

Table 4. Factors Associated with Health Care Provider HIV/AIDS Stigma Subscale Scores Among Surveyed Healthcare Providers.

	Prejudice ^a			Stereotyping ^b			Discrimination ^c		
	Estimate	95% CI	P-value	Estimate	95% CI	P-value	Estimate	95% CI	P-value
Age (years)	---	---	---	-0.04	[-0.22, 0.14]	.6359	---	---	---
Years working in healthcare	---	---	---	-0.09	[-0.28, 0.10]	.3364	---	---	---
Race:									
White	Ref	---	---	---	---	---	Ref	---	---
Black	1.55	[-0.78, 3.87]	.1920	---	---	---	-0.56	[-2.01, 0.89]	.4502
Asian	-1.86	[-3.73, -0.002]	.0497	---	---	---	-1.71	[-2.89, -0.53]	.0045
Other	-0.97	[-3.71, 1.76]	.4865	---	---	---	-1.85	[-3.61, -0.08]	.0404
Sex at birth									
Male	---	---	---	Ref	---	---	---	---	---
Female	---	---	---	4.09	[2.15, 6.04]	<.0001	1.09	[0.08, 2.10]	.0346
Prefer not to answer	---	---	---	7.48	[-2.32, 17.29]	.1347	-0.53	[-5.83, 4.77]	.8446
Current practice setting									
Academic center	Ref	---	---	---	---	---	---	---	---
Tertiary Care Center	0.73	[-2.09, 3.55]	.6139	-1.54	[-4.89, 1.81]	.3682	---	---	---
Non-Academic									
Private Practice	0.19	[-1.71, 2.09]	.8428	-0.51	[-2.85, 1.83]	.8428	---	---	---
Community Care Clinic	-0.47	[-2.84, 1.91]	.7008	-0.76	[-3.59, 2.06]	.5960	---	---	---
Other	0.73	[-1.44, 2.90]	.5103	0.28	[-2.34, 2.89]	.83533	---	---	---
HIV General Knowledge Score	0.66	[0.03, 1.28]	.0391	-0.09	[-0.85, 0.67]	.8196	0.23	[-0.17, 0.63]	.2555
Comfort with talking about sex and drugs	0.97	[0.57, 1.37]	<.0001	0.59	[0.10, 1.07]	.0174	0.18	[-0.08, 0.43]	.1747
Feeling not responsible for providing HIV prevention care	-0.54	[-1.0, -0.08]	.0222	-0.91	[-1.47, -0.35]	.0014	-0.26	[-0.55, 0.03]	.0837
People living with HIV should be allowed to have babies if they wish.									
Strongly agree	Ref	---	---	---	---	---	---	---	---
Agree	-5.09	[-6.66, -3.52]	<.0001	-4.86	[-6.72, -2.30]	<.0001	-2.96	[-3.95, -1.98]	<.0001
Disagree & Strongly disagree	-5.34	[-8.54, -2.14]	.0011	-6.67	[-10.47, -2.88]	.0006	-3.54	[-5.57, -1.50]	.0006

Ref = Reference.

^aAdjusted for race, current practice setting, HIV general knowledge score, comfort with talking about sex and drugs, feeling not responsible for providing HIV prevention care, response to people living with HIV should be allowed to have babies if they wish.

^bAdjusted for age, years in healthcare, race, sex, current practice setting, HIV general knowledge score, asking about sex and drugs, comfort with talking about sex and drugs, feeling not responsible for providing HIV prevention care, response to people living with HIV should be allowed to have babies if they wish.

^cAdjusted for race, sex, HIV general knowledge score, comfort with talking about sex and drugs, feeling not responsible for providing HIV prevention care, response to people living with HIV should be allowed to have babies if they wish.

HIV-seroprevalence and provider training differ. However, studies show that training positively influences how healthcare providers think about HIV, the way they provide care for PLWH, and their knowledge pertaining to HIV.³⁸ Exposure to PLWH also influences provider level comfort in caring for this population.³⁹ Thus, implementation of training for knowledge gaps and comfort identified in our study population may

also be beneficial in other settings. The high response rate we achieved may be a reflection of the collaborative effort with the DC DOH for dissemination of the survey. Also, there may be some selection bias with a self-selection of study respondents with a particular interest in the topic as not all providers in DC participated in the survey. Mid-level providers were over-represented in our cohort as there were

proportionally more mid-level providers than are represented among licensed DC healthcare providers.^{40,41} However, the distribution of practice areas, and provider types is reassuring that our findings are relevant and representative of the diversity of providers practicing in DC.

Conclusions

HIV-related stigma remains even among a group of educated healthcare providers with good HIV knowledge, licensing stipulated requirements for ongoing HIV related education, and high levels of exposure to PLWH. Opinions related to PLWH and procreation, comfort with talking to patients about sex and drugs, and feelings of responsibility to provide HIV prevention services were associated with HIV related stigma. Training and education should target skills and competency in obtaining sexual and drug use histories as well as increase knowledge through education on HIV transmission, HIV during pregnancy and conception, and preventative services. Implementing training of this nature may be particularly important in areas where there are reports of HIV levels of HIV related stigma including the deep south or among providers who have less experience in the care of PLWH.¹⁹ Studies to determine whether implementing these inventions influences HIV provider level stigma and improves viral suppression rates and patient outcomes are needed.

Declaration of Conflicting Interests


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Supplemental Material

Supplemental material for this article is available online.

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