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The Effects of Stigma within the PrEP Care Cascade Among People Who Inject Drugs in Rural Kentucky

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ABSTRACT

Background: Injection drug use has increased HIV burden in low-prevalence communities, specifically within rural Kentucky. Pre-exposure prophylaxis (PrEP) has been successful in terms of HIV prevention, yet uptake remains low among people who inject drugs (PWID). PWID living in rural areas face unique challenges to receiving PrEP care, including significant barriers of substance use- and HIV-related stigma. Recent studies have only started to explore the overlapping effects of these two stigmas. Considering the barriers each stigma independently poses to PrEP care, it is important to investigate their role in tandem for any compounding effects. This paper is a secondary analysis on the effects of intersectional stigma on written PrEP prescription.

Methods: This study analyzed baseline survey and clinical visit data collected by the RISE HIV Prevention Trial – Aim 3 Assessment from 2022 to 2024. Eighty participants were enrolled for pilot trial among two county SSP locations in rural southeastern Kentucky. Our analytic sample excluded participants who reported never experiencing either stigma, substance- or HIV-related. Exact logistic regression was used to analyze the relationship between intersectional stigma status (experiences of HIV- and substance-related stigma) and written PrEP prescription.

Results: Among our analytic sample, 55.7% of participants had intersectional experiences of stigma. Those who reported intersectional experiences of stigma had 1.28 times the odds of receiving written PrEP prescription compared to those with individual experiences of stigma.

Conclusion: The measures of association indicate that experiences of individual and intersectional stigma yield differing probabilities of receiving PrEP prescription. Further research will be needed to explore conflicting findings among this theory.

Introduction

Injection drug use is the second-leading cause of HIV infection in the United States [1, 2]. People who inject drugs (PWID) account for roughly 9% of all incident cases, making them 22 times more likely to acquire infection as opposed to those who do not inject drugs [3-5]. The HIV burden is particularly substantial in Kentucky, as we are beginning to see increasing trends of HIV incidence in historically low-prevalence communities [4].

It is important to note, however, the changing landscape of HIV prevention remains promising – particularly with the development of oral pre-exposure prophylaxis (PrEP) and supportive prevention means (e.g. regular HIV testing, education, risk reduction counseling, and condom use). PrEP is an antiretroviral medication taken by HIV-negative people to significantly reduce their risk of acquiring HIV. In clinical trials, PrEP reduced the risk for HIV transmission via injection drug use by approximately 75% when taken as prescribed [6]. Tenofovir is the key component of PrEP that interferes with viral replication and reduces the risk of transmission. When also undergoing clinical trial, there was a 49% reduction in HIV incidence among the oral tenofovir group [6, 7]. The World Health Organization also now recommends PrEP as part of a combination HIV prevention regimen, specifically among PWID [8, 9]. However, there is a sizeable discrepancy between efficacy as measured in clinical trials and real-world effectiveness in PrEP care. Following its initial approval in 2012 by the Food and Drug Administration, PrEP scale up has been less than optimal in the United States. Kentucky remains among the lowest in terms of uptake (i.e. written prescription, medication adherence, and access to PrEP care), with only 11% of individuals indicating a need for PrEP received care in 2020 [2, 10-12].

PrEP uptake seems to uniquely manifest within PWID subpopulations, especially among rural communities. Several qualitative studies indicate significant barriers to care – one of the largest

being perceived stigma [1, 13-19]. Recent investigations have begun to explore the role of stigma in the effectiveness of treatment. More specifically, the intersection of highly stigmatized conditions appears to amplify perceived effects of discrimination beyond their conditional independent experiences [20-23]. Studies of intersectional stigma and PrEP care have generally been limited to stigmas of race, class, and homophobia [24-26]; consequently, there is little documented specific to PWID – especially in rural communities [27, 29-33]. Within this study, we investigate the role of HIV- and substance-related stigma obtaining PrEP care among PWID in rural Kentucky. Guided by the Health Stigma and Discrimination Framework, we analyze condition-specific measures of stigma at independent and intersectional levels related to receiving a PrEP prescription [20-23, 27-30]. This particular framework focuses on the intercorrelation of health-related and sociodemographic stigmas, rather than a siloed approach. Findings from this study may help inform PrEP interventions in rural healthcare settings and identify stigma-related barriers to scale up efforts.

Methods

Parent Study Protocol

Background

The existing data used within our secondary analysis is sourced from the RISE HIV Prevention Trial – Aim 3 Assessment [36]. This parent study has been reviewed and approved by the University of Kentucky Office of Research Integrity Institutional Review Board (IRB). Approval for the study was granted under IRB #67933 on June 28, 2022. The primary analysis explores the

impact of strengths-based case management (SBCM) interventions in comparison to the CDC-standard consultation on filling a PrEP prescription among people who inject drugs. This is an ongoing, NIDA-funded pilot trial consisting of 80 enrolled participants [36]. Participants were enrolled from two syringe service program (SSP) locations in rural, eastern Kentucky. The health department SSPs selected for inclusion rank among the nation's top ten most vulnerable to HIV and other infections attributable to injection drug use [37].

Inclusion and Exclusion Criteria

Participants were primarily recruited through in-person discussion with on-site study staff. In addition, the project team posted flyers for advertisement around SSP facilities and within private social media pages specifically created to distribute information to SSP clients. Individuals were required to meet all of the following criteria in order to be considered eligible for inclusion: (1) be 18+ years of age; (2) report at least one instance of injection drug use within the last 30 days; (3) indicate a need for PrEP consistent with CDC clinical practice guidelines within the last six months [38]; (4) participate in SSP at the time of study entry; (5) be willing to participate in follow-up interviews and intervention education session(s) [36]. Respondents were also required to provide contact information for follow-up – whether that be phone number, email address, home address, or emergency contact information. Following the screening process, those still willing to participate reviewed study procedures, risks, and benefits of volunteering with trained staff members as part of the informed consent process. Participants who were HIV-positive or who were already currently receiving PrEP care at baseline were excluded from the study.

Data Collection and Measures

The trial for the parent study opened for enrollment November 1, 2022. Enrollment for the prospective cohort trial concluded October 31, 2023, with continued projected follow-up through April 31, 2024. Participants were asked to complete the RISE HIV Prevention PrEP Study Interview at three selective time points: baseline (upon enrollment), three-month, and six-month follow-up. The questionnaire pertains to a variety of patterns and features of substance use including: health risk behaviors, utilization of healthcare services, mental health, self-image, HIV- and substance use-related stigma, and PrEP awareness and interest [36].

Study staff conducted these computer-assisted personal interviews (CAPI) with clients through REDCap data management systems while on-site at the SSP [39, 40]. The standardized interview was adapted from the Global Appraisal of Individual Needs (GAIN) [41, 42]. Demographic information was also collected, including age, gender, race, ethnicity, and county and zip code of residence. All interviews took place during SSP operating hours. Participants were provided gift cards as compensation for their participation and incentive for recruitment referrals.

Following their baseline interview, clients were asked to complete an initial clinical visit with the APRN for laboratory testing and a secondary clinical visit (i.e. results visit) to receive their testing results. This testing was to ensure that participants remained suitable candidates for PrEP and to monitor overall health prior to potentially starting treatment. This included testing for: HIV, kidney function, hepatitis B, and pregnancy. Clinical visitation records and prescription logs were kept by on-site study staff.

Present Study Protocol

The present study is a cross-sectional, secondary data analysis of baseline surveys and results visits to receive a PrEP prescription within the RISE HIV Prevention Trial. All 80 participants completed baseline and are included in the analytic sample.

Outcome

The primary outcome of interest was receipt of PrEP prescription, measured from clinical records kept by on-site study staff. This included records of (1) completion for initial and results visits with a study PrEP provider and (2) a written PrEP prescription. Prescription logs were maintained by on-site providers as to which participants opted for treatment at baseline and received a written prescription order at results visit. The receipt of PrEP prescription from a medical provider was our primary focus within analysis.

While no one was excluded from PrEP prescription based on testing results, it is important to note the number of participants who never returned for their results visit. To ever receive a written PrEP prescription, clients were required to attend this visit. To date, 32 participants (40.0%) have not returned for their results visit in which participants could then receive their written prescription. This is accounted for among those who opted *not* to receive a written PrEP prescription.

Independent Measures of Interest

Our primary independent variable of interest in the present study is stigma, defined as condition-specific (i.e., HIV and substance use) measures of stigma at independent and intersectional levels Because of its complexity, we classified stigma within substance use- or HIV-related categories – each of which were assessed and scored using existing validated scales throughout the baseline questionnaire. Substance-related stigma measures were adapted in the parent study from the Substance Use Stigma Mechanisms Scale [43], whereas levels of HIV-related stigma are established by the HIV Stigma Scale [44]. It is important to note, however, that measures of HIV-related stigma are community-based, rather than ones of individual experience. Because our study population is inclusive of HIV-negative individuals, this measure was solely captured through witness of stigma at the community level. Clients were asked a series of statements from each scale and asked to rate them within a Likert scale. Substance use-related stigma was assessed through six items in terms of responses of frequency: (1) "family members have thought that I cannot be trusted," (2) "family members have looked down on me," (3) "family members have treated me differently," (4) "healthcare workers have not listened to my concerns," (5) "healthcare workers have thought that I'm pill shopping or trying to con them into giving me prescription medications to get high or sell," and (6) "healthcare workers have given me poor care." HIV-related stigma was assessed with the following three items in terms of agreement: (1) "most people believe a person who has HIV is dirty," (2) "people with HIV are treated like outcasts," and (3) "most people are uncomfortable around someone with HIV." Responses from each scale were scored and totaled within a Likert scale, and then classified by category of experienced stigma: None (total score ≤ 6), Low ($7 \leq$ total score ≤ 14), Moderate ($15 \leq$ total score ≤ 22), or High (total score ≥ 23). Those indicating levels of "moderate" or "high" were considered to have experienced that type of stigma.

To capture intersectionality between the two stigma measures, responses were similarly classified based on total score within each type of stigma category and compared by frequency. Overall experiences of stigma were then categorized into one of four groups based on these indicators of frequency: neither stigma in both categories, substance use stigma only, HIV stigma only, or both substance use and HIV stigma [20, 21]. Due to small cell size, this variable had to be further condensed into categories of "HIV- *or* substance- related stigma" or "HIV- *and* substance-related stigma." The category "HIV- *or* substance-related stigma" indicates that the participant has either higher frequency of substance use stigma exclusively or higher frequency of HIV stigma. The "HIV- *and* substance-related stigma" was our reference category for encounters of intersectionality between stigmas. This was adapted from previous study classifications of stigma and engagement in HIV care [45-47]. Only one participant reported no HIV-related or substance use-related stigma and was only included in our descriptive analysis.

Social determinants of health: Study participants were asked about availability of material resources that could be considerable facilitators or barriers to receiving PrEP care. Prior qualitative study among the two sites of operation identified potential factors more specific to the area, in recognition that rural communities face distinct challenges in terms of healthcare access and quality [3, 48]. Stable housing was assessed with one item: "When was the last time if ever, you considered yourself to be homeless?" This variable was dichotomized in reference to experiences within the last year (12 months). Similarly, clients were also asked if they had access to a personal cellphone. Access to transportation was reported by participants via the question: "What form of transportation do you usually use to get from place to place?" Response options include: personal car, ride with family/friend, public transportation, walking, and cycling. These responses were further collapsed into access to a personal car (yes/no). Participants were also

asked to report any experiences of food insecurity using the Food Insecurity Experience Scale (FIES) [49]. Each item was assessed on a Likert scale of frequency ranging from 1-3: 1 being "never," 2 being "sometimes," and 3 being "often." Total scores between items were then collapsed into these same categories of "never (total score < 3)," "sometimes (3 ≤ total score ≤ 5)," and "often (total score > 5)."

Comorbidities: Participants self-reported any comorbidities from a list of the following conditions: asthma, cancer, diabetes, endocarditis or septic infection, heart conditions, Hepatitis B, Hepatitis C, high blood pressure, high cholesterol, kidney conditions, liver conditions, lupus, neuropathy or nerve conditions, pneumonia, bronchitis, skin conditions, sleep disorders, or stomach conditions. Patients were also given the option to specify any conditions not included in this list. We summed the number of comorbidities reported for each individual and categorized the sums into tertiles: "0-2", "3-5", or ">5." We also identified the most common comorbidities reported in the sample.

Substance most often injected: Primary substance use has often been known to offer various levels of stigma – specifically at the community level. We chose to include type of substance most often injected in the last 30 days. Heroin, suboxone, or any other prescription opioid taken not as prescribed was combined into a single category called "opioid." All other participants reported the use of methamphetamine.

PrEP knowledge and interest: Preliminary qualitative investigations revealed lower levels of knowledge surrounding PrEP within the service regions, so participants were asked to rank their knowledge of PrEP [3]. This item assessed what PrEP is and how it is used, with response options ranging from very low to very high. PrEP interest was measured from one item, adapted

from Pagkas-Bather's assessment of acceptability, and divided into categories [50]. Responses of "very low" and "low" were grouped together, and any scores of "about average" or above were categorized together. Scores of PrEP interest were ranked in the same manner. Participants were asked to rate their level of interest in learning more about PrEP on a Likert scale from "not interested" to "very interested". Responses of "very interested" and "extremely interested" were placed in one group, and remaining response options were assigned to categories of "average or below."

Analysis

We calculated descriptive statistics of proportion to summarize PrEP prescription and its potential predictors. The explanatory variables included are: demographic characteristics (categories of age, sex, race, assignment of treatment arm in the parent trial), number of comorbidities, substance most often injected, experiences of stigma, social determinants of health (transportation, stable housing, food security, cellphone access), and overall PrEP knowledge and interest. One participant was excluded from bivariate and multivariate analysis because they had reported never experiencing either type of stigma. Additionally, race and PrEP knowledge were excluded from these analyses due to the relatively homogeneous nature of the sample.

To conduct the analysis, variables were stratified by categories of written PrEP prescription, to which chi-square or Fisher's exact tests were used to generate p-values and identify potential predictors. All covariates included within the multivariate model were identified within theoretical considerations of the Health Stigma and Discrimination framework and through

means of bivariate analysis. Associations with alpha-level $p \leq 0.10$ in bivariate analysis were considered statistically significant and included in our multivariable exact logistic regression model. We used the same alpha-level of 0.10 to denote statistical significance within our multivariate model. Variance inflation factors (VIFs) were used to identify the degree of multicollinearity among predictors. All statistical analyses were conducted using SAS® (version 9.4.M8) [42].

Results

In summary of key characteristics, the sample consisted of 80 participants. A majority of participants fell within the range of 35-54 years old, with a mean age of 40.5 years (SD = 9.3). There were 47.5% of the participants that identified as male and 52.5% of participants identified as female. The sample was predominately white (95%), and more than half of the population reported three or more related comorbidities (68.8%). The most prevalent having been: hepatitis C (53.8%), arthritis (47.5%), high blood pressure (43.6%), and sleep disorder (42.5%)

Within patterns of substance use, 68.8% of participants disclosed methamphetamine to be the substance they most often inject. Over half reported both substance use- and HIV-related stigma (55.7%). There was substantially little knowledge of PrEP, with 82.5% of participants reporting low to very low knowledge. However, overall PrEP interest remains high (50%).

In terms of intervention, 41 (51.2%) participants are assigned to the SBCM treatment arm whereas 39 (48.8%) participants are assigned to comparison. 22 (27.5%) of participants opted for PrEP prescription at baseline, yet there are still significant reported barriers to care. 51.2% report

unstable housing within the last 12 months, 76.2% report experiences of food insecurity, and only 36.2% have access to a personal vehicle.

In Tables 2 and 3, we explore the relationship among our variables with respect to written PrEP prescription. Only categories of age and PrEP interest met the pre-determined threshold for inclusion in the multivariable model (both $p \leq 0.10$). After incorporating these covariates, the model indicates that intersectional stigma is associated with greater odds of PrEP prescription compared to those who experience independent measures of stigma – presenting an adjusted odds ratio estimate of 1.28 (95% CI: 0.41, 4.00). However, this did not yield statistical significance.

It is also important to highlight sociodemographic components that may account for variation along the PrEP care continuum – age notably being the most prominent. Receipt of PrEP prescription appears to be correlated with changes in age, with lowest levels of written prescription being among the youngest age stratum. Participants aged 35-54 present an odds ratio of 6.02 (95% CI: 1.19, 30.71) and those aged 55 and older present an odds ratio of 2.80 (95% CI: 0.29, 27.49), indicating much higher record of prescription compared to the referent category. Other considerable points of sociodemographic interest are within housing stability, food insecurity, transportation, cellphone access, and comorbidity. Each demonstrates some correlation to individual PrEP prescription; however, none achieve statistical significance within these findings. Additionally, VIF values did not indicate significant concerns of multicollinearity among predictor variables.

Discussion

The objective of this cross-sectional study was to explore the association between intersectional stigma of HIV and injection drug use and its impact on PrEP prescription. Although this is only within stages of pilot trial, it is among the first to observe intersectional stigma specific to rural communities and the respective demographic. With consideration to the substantial burden of HIV and substance use in Kentucky, we want to compare the overall implications of stigma in health-related decision-making while simultaneously contrasting the roles of each individual stigma [20-23, 37].

Notably, we expect stigma to reflect the cultural beliefs, values, and structures central to the community and its members [34, 35, 44, 51-54]. Among clients attending SSPs in rural Kentucky, HIV-related stigma appears most burdensome. Substance-related stigma is much lower. In fact, 60.8% of participants reported moderate- to high-levels of experience in substance-related stigma, whereas 97.5% of participants have witnessed HIV-related stigma. This could largely be attributable to perception of effect. HIV is a life-long diagnosis with no cure, while substance use behaviors generally vary specific to the individual, so HIV may be more vulnerable to stigmatization [55-57]. While these findings suggest improvements in community drug-related stigma, increased HIV-oriented outreach efforts could be substantial to PrEP utilization and acceptability.

Overall, PrEP was prescribed to 22 participants at baseline assessment – one of which was excluded from analysis for lack of experiences in stigma. Despite very low baseline knowledge of PrEP, there is a notably high interest. Strata of high or extremely high interest were associated with 4.95 times the odds (CI: 1.48, 16.47) of being written a PrEP prescription as compared to

those with average interest or below. This corresponds to our current understanding of the role of engagement in patient decision and adherence to care [58, 59]. In tandem with efforts to increase knowledge, there is considerable potential to see further increase in interest with improved education efforts. Age, however, had some variation within expectation, as we saw highest numbers of written prescription among adults age 35-54 and lowest levels of written prescription among adults age 18-34. This might be attributable to changes in perception of risk and vulnerability throughout the lifespan. Younger adults often present higher levels of risk behavior due to cognitive theories of invincibility [60, 61]. Also, in a national sample of discontinued PrEP use, this particular age group yields the highest rate of uninsured, thereby increasing barriers to care [62, 63]. Other sociodemographic variables modeled potential patterns of change in prescribed PrEP, including numbers of comorbidity, housing stability, food insecurity, transportation, and cell phone access; however, none were statistically significant.

To our specific interests of stigma, we found experiences of intersectional stigma to be associated with increased odds of PrEP prescription. This contradicts our expectation, as we anticipated a negative correlation between compounded stigma and PrEP acceptance; however, participants with intersectional experiences of stigma had 1.28 times the odds (95% CI: 0.41, 4.00) of opting for PrEP prescription compared to those with individual experiences of stigma. This could potentially be explained by increased desire for support and perception of risk, thereby encouraging action towards care [60].

Further literature review also presented conflicting findings among theory. A care engagement study in Ukraine reveals that enacted and internalized stigma among intersectional categories is negatively associated with adherence [45]. On the contrary, a randomized clinical trial of similar

interest reports that while impactful, intersectional stigma did not have an increased effect to healthcare engagement as opposed to other groups of comparison [64]. Because the discussion of intersectionality within stigma is relatively new, future research is crucial to address the observed inconsistencies.

Limitations

The study findings should be interpreted in consideration of the following limitations – first being limitation within sample size. This cross-sectional analysis was conducted among a population of a pilot study; therefore, we are working within a very small sample size, increasing our risk for type II error and limiting tests of significance. This also contributed to extremely wide confidence intervals within our predictors of interest, indicating high levels of uncertainty. We attempted to adjust for this limitation within the development of our statistical model and within the reconstruction of referent level categories.

In this analysis we only examined whether prescriptions were issued by providers within this analysis; however, that does not guarantee that the prescription was ever obtained from the pharmacy or taken as prescribed. The parent study will examine whether the PrEP prescription was filled, but that was not available for this study. Additionally, this measure does not account for participants who were prescribed PrEP outside of study care. However, this is unlikely considering the lack of PrEP providers in the area. The practitioners among study staff were among the very few providers in the area that were registered to provide care.

Additionally, we want to acknowledge that there could be bias within our interpretation of stigma. Substance-related stigma was assessed from the perspective of the participant's personal experience, whereas HIV-related stigma was assessed at the community-level. Participants were required to be HIV-negative at enrollment. In order to capture elements of HIV-related stigma, our primary focus was their witnessed experiences of stigma within the community. This could cause some variation within our measures of perception, considering the difference among perspective. Lastly, the data used within our analysis is cross-sectional, so it limits us from establishing causal or temporal relationships between variables.

Future Directions

This study aims to contribute to evidence-based practice to increase PrEP care and acceptability, while simultaneously offering foundation for expansion within future research. Given that this study is strictly exploratory, it could be beneficial to conduct longitudinal studies of intersectional stigma to observe potential changes in stigma and acceptability over time. This would better allow practitioners to identify specific risk profiles associated with stigma and to optimize means of care. In respect to our study's limitations, we might also want to explore other elements of PrEP uptake. This would include data as to whether prescriptions were obtained by participants from the pharmacy and their adherence to PrEP treatment regimen. As a result, this would allow for a more comprehensive understanding of any remaining barriers to uptake. Additionally, recent utilization of SSPs in substance-related care offers the potential to facilitate engagement among the community. Not only do they provide access to harm reduction services, but also establish supportive environments for stigma reduction among the community [65-68].

Because rural communities are presented with unique challenges to receiving care, it is important to establish multi-level interventions to care [68-73].

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Figures

Table 1. Demographic characteristics and substance use behaviors of pilot trial participants (n=80)

Characteristics	n	%
Age		
18 - 34	23	28.7
35 - 54	49	61.3
55+	8	10.0
Sex		
Male	38	47.5
Female	42	52.5
Race		
White	76	95.0
Black or African American	3	3.8
Native American or American Indian	1	1.2
Comorbidity		
Number of comorbidities[a]		
0 - 2	25	31.2
3 - 5	36	45.0
>5	19	23.8
Most prevalent comorbidities (top 4)		
Hepatitis C	43	53.8
Arthritis	38	47.5
High blood pressure	34	42.5
Sleep disorder	31	38.8
Substance most often injected [b]		
Methamphetamine	56	70.0
Opioids	24	30.0
Intersectionality of stigma		
HIV- ***or*** substance-related stigma	35	43.7
HIV- ***and*** substance-related stigma	44	55.7
Prescribed PrEP	22	27.5
Unstable housing (last 12 mos.)	41	51.2
Cell phone access	67	83.8
Experiences of food insecurity		
Never	19	23.8
Sometimes	28	35.0
Often	33	41.2
Access to personal vehicle		
Yes	29	36.2
No	51	63.8
Treatment arm		
Intervention group (SBCM)	41	51.2
Control group (CDC)	39	48.8

PrEP knowledge		
Low or very low	66	82.5
Average or above	14	17.5
PrEP interest		
Average or below	40	50.0
High or extremely high	40	50.0

[a] Participants were assessed at baseline for comorbidities via self-report. This refers to the number of comorbidities within each participant.
[b] This is in reference to self-report of the substance most often injected by participants within the last 30 days of use.
[c]Opioids include the injection of: Heroin, Suboxone, or any prescription opioid (e.g. Percocet, Vicodin, OxyContin, Codeine, Morphine, Tramadol, etc.) not as prescribed by a doctor.

Table 2. Baseline sample characteristics by receipt of written PrEP prescription (n=79[a])

	Prescribed PrEP		**Not Prescribed PrEP**		
	n = 21	***%***	***n = 58***	***%***	**p-value**
Age					**0.049***
18 - 34	2	9.5	21	36.2	
35 - 54	17	81.0	32	55.2	
55+	2	9.5	5	8.6	
Sex					
Male	10	47.6	27	46.6	0.807*
Female	11	52.4	31	53.4	
Number of comorbidities					0.760*
0 - 2	6	28.6	19	32.8	
3 - 5	9	42.9	27	46.6	
>5	6	28.6	12	20.7	
Substance most often injected					0.385
Methamphetamine	13	61.9	42	72.4	
Opioids	8	38.1	16	27.6	
Intersectionality of stigma					0.680
HIV- ***or*** substance-related stigma	8	38.1	27	56.6	
HIV- ***and*** substance-related stigma	13	61.9	31	53.4	
Unstable housing (last 12 mos.)	10	47.6	31	53.4	0.839
Cell phone access	19	90.5	47	81.0	0.496
Experiences of food insecurity					0.464*
Never	4	19.0	14	24.1	
Sometimes	10	47.6	18	31.0	
Often	7	33.3	26	44.8	
Access to personal vehicle					1.000

Yes	7	33.3	21	36.2	
No	14	66.7	37	63.7	
Treatment arm					0.659
Intervention group (SBCM)	12	57.1	28	48.3	
Control group (CDC)	9	42.9	30	51.7	
PrEP interest					**0.013**
Average or below	5	23.8	34	58.6	
High or extremely high	16	76.2	24	41.4	

*Fisher's exact test was used for analysis as opposed to chi-squared test.
[a]1 participant did not experience *any* stigma and were removed from the present analysis.
[b] Race and PrEP knowledge were excluded from the multivariate analysis due to the homogeneous nature of the population and overall small cell size.

Table 3. Unadjusted and adjusted odds ratios for receipt of written PrEP prescription (n=79[a])

	Unadjusted OR (95% CI)	**p-value**	**Adjusted OR (95% CI)**	**p-value**
Age				
18 - 34	Ref		Ref	
35 - 54	5.58 (1.17, 26.68)	0.114	6.05 (1.19, 30.71)	**0.029**
55+	4.20 (0.47, 37.49)	0.535	2.80 (0.29, 27.49)	0.377
Sex				
Male	Ref		--	--
Female	0.96 (0.35, 2.60)	0.933	--	--
Number of comorbidities				
0 - 2	Ref		--	--
3 - 5	1.06 (0.322, 3.46)	0.733	--	--
>5	1.58 (0.41, 6.06)	0.459	--	--
Substance most often injected				
Methamphetamine	0.62 (0.22, 1.77)	0.372	--	--
Opioids	Ref		--	--
Intersectionality of stigma				
HIV- ***or*** substance-related stigma	Ref		Ref	
HIV- ***and*** substance-related stigma	1.42 (0.52, 3.93)	0.505	1.28 (0.41, 4.00)	0.671
Unstable housing (last 12 mos.)				
Yes	0.792 (0.29, 2.15)	0.647	--	--
No	Ref		--	--
Cell phone access				
Yes	Ref		--	--
No	0.450 (0.09, 2.22)	0.327	--	--

Experiences of food insecurity				
Never	Ref		--	--
Sometimes	1.95 (0.50, 7.53)	0.191	--	--
Often	0.94 (0.24, 3.78)	0.475	--	--
Access to personal vehicle				
Yes	Ref		--	--
No	1.14 (0.40, 3.26)	0.814	--	--
Treatment arm				
Intervention group (SBCM)	1.43 (0.52, 3.91)	0.487	--	--
Control group (CDC)	Ref		--	--
PrEP interest				
Average or below	Ref		Ref	
High or extremely high	4.53 (1.46, 14.06)	**0.008**	4.95 (1.48, 16.47)	**<0.01**

[a] 1 participant did not experience *any* stigma and were removed from the present analysis.
[b] Race and PrEP knowledge were excluded from the multivariate analysis due to the homogeneous nature of the population and overall small cell size.