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Police Harassment and Psychiatric, Sexual, and Substance Use Risk Among Black Sexual Minority Men and Black Transgender Women in the HIV Prevention Trials 061 Cohort

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Abstract

Background—Black sexual minority men and Black transgender women (BSMM/BTW) experience disproportionate levels of HIV/STI-related risk factors as well as police harassment (PH). PH is linked to psychiatric risk and could play a role in substance use, sexual risk behavior, and HIV/STI risk.

Methods—We used data from the HIV Prevention Trials Network 061(HPTN 061) study to examine associations between PH and HIV/STI-related outcomes. Using PH exposure measured at baseline and 6-month study visits, we examined an ordinal exposure (PH reported at both visits, PH reported at either visit, versus PH reported at neither baseline nor 6 months) and a

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Ethics Approval This is an observational study. The Institutional Review Board at NYU Grossman School of Medicine has confirmed that no ethical approval is required.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent for Publication The authors affirm that human research participants provided informed consent for publication of the results of this study.

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binary exposure of persistent PH reported at both visits (yes versus no). We estimate risk ratios (RR) for associations between PH and depression, use of alcohol and methamphetamine, multiple partnerships, condomless sex, and syphilis.

Results—Persistent PH (binary) was associated with a 20% or greater increase in the risk of depression (RR, 1.26 (1.07, 1.47)) and multiple partnerships (RR, 1.20 (1.05, 1.39)). There was evidence that ordinal PH was associated with elevated risk of alcohol use (RR, 1.17 (1.00, 1.36)); the point estimate for the association between persistent PH and alcohol use was similar but the imprecision was greater (RR, 1.16 (0.95, 1.42)).

Conclusion—PH may influence not only mental health but also behavioral risks that contribute to HIV/STI among BSMM/BTW, highlighting the potential wide-ranging and downstream effects of PH on health. Further research is required to confirm associations and elucidate pathways through which PH may influence HIV/STI among BSMM/BTW.

Keywords

Police harassment; Black sexual minority males; Black transgender women; Substance use; Sexual risk behavior

Introduction

Black sexual minority men (BSMM) and Black transgender women (BTW) are substantially and disproportionately affected by high rates of HIV/STI acquisition compared to other minority groups [1–6]. Excess risk among racial and sexual minorities, such as BSMM, is explained by intersectionality and minority stress models [7, 8] which posit that membership in multiple marginalized and stigmatized identity groups induces health risks, which are driven by harmful macro-level social processes. Stress may contribute to adverse biological responses, including inflammation and immunomodulation, which increases risk of STI and sequelae. Both acute and chronic stress can impact behavioral and biological responses, and one's perceptions of current stress are likely indicative of stress responses over time. Inequities in outcomes that impact BSMM/BTW are thought to be heavily influenced by entrenched and pervasive societal practices, such as structural racism, discrimination, and prejudice, which lead to a variety of adverse health-related outcomes [9–19].

These structural adversities confer an increased risk of poor mental health, which often co-occurs with increases in behavioral risk-taking [20–22]. Particularly, BSMM/BTW face risk of mental health conditions, alcohol misuse, including hazardous and binge drinking [23] stimulant use including methamphetamine [1, 24] and HIV/STI-related sex risk [5]. Poor mental health (e.g., depression, anxiety, and suicidality) is prevalent among BSMM and BTW [25] and is linked to increased sexual risk behavior (including unprotected sex and having multiple sex partners) [26] and in turn to HIV and STI infection [27]. While BSMM and BTW historically have had lower rates of hazardous drinking and methamphetamine use compared to their racial and cisgender counterparts [28–30], alcohol and stimulant use appear to be on the rise in this population, which may lead to increased HIV/STI risk among groups that are already disproportionately burdened [31]. Studies have shown that heavy

alcohol use and methamphetamine use increase engagement in sexual risk behaviors such as condomless sex and multiple partnerships and subsequent elevated HIV/STI risk [32].

Disproportionate contact with the police and exposure to PH in minority communities is attributed to a patchwork of state and federal policies that precipitate the discriminatory targeting of minority groups, leading to disproportionate exposure to police contact [33]. The high prevalence of police contact among racial and sexual minorities underscores the potential population-level importance of police exposure [34] and is hypothesized to drive health inequities among targeted minority populations [13, 35, 36]. For example, in 2005, Baltimore city enacted a “zero tolerance” policy, which targeted low-income communities with high crime rates and resulted in the arrest of over 100,000 people, 15–35% of which had no probable cause [37]. Further, policies such as “stop and frisk” are important drivers of asymmetrical police contact among BSMM/BTW [38]. For instance, a study examining routine traffic stops in New York City (NYC) found that among men of medium height and weight, Black men had 24% increased odds of being stopped/searched compared to their white counterparts [39]. Similar findings have been reported in other major cities, including Philadelphia, Pennsylvania, Los Angeles, California, and Chicago, Illinois [36].

Not only racial/ethnic minorities, but sexual minority groups also face increased risk of discriminatory acts of violence and harassment by police, given that they are likely perceived to be transgressing social norms. Studies suggest that a substantial proportion of sexual minorities have encounters with the police that feature hostile attitudes, verbal and physical assault, and sexual harassment [40]. Our work and that of others has found that approximately half of BSMM and BTW have experienced police harassment [35]. People at the intersection of racial/ethnic and sexual minority status, such as BSMM and BTW, experience an even greater disproportionate risk of police contact and harassment [41] and may face a heightened risk of police contact-related mental health and related behavioral risk [42]. A 2014 report found that many sexual minority respondents had encounters with the police within the past five years; 21% reported experiencing hostile attitudes, 14% reported verbal assault, 3% reported sexual harassment, and 2% reported physical assault by police officers. A 2016 report found that 48% of lesbian, gay, bisexual, and transgender people reported experiencing police misconduct after an interaction [40].

Police harassment appears to influence adverse health-related outcomes by working through distinct and mutually reinforcing pathways. One potential pathway is by inducing depression and anxiety [43], which in turn stimulates the uptake of risk-taking behaviors and sequelae by increasing stigma and discrimination associated with police exposure directly or by living in a neighborhood with high rates of PH [12, 44]. Another pathway is by increasing exposure to violence and victimization [35, 45], particularly through poverty entrenchment when disproportionate police contact leads to incarceration [46, 47], and by reducing trust in and access to healthcare [48]. Each pathway may function to impede screening for psychiatric and substance use factors and behavioral risk-taking [49] (Fig. 1).

Furthermore, Black men who report adversarial police encounters cite aggressive physical contact and harsh language by police, which can have cumulative effects, leading to distress, anxiety, and depression [44]. Black men who live in highly surveilled neighborhoods report

high levels of worry and anticipation of being stopped as well as anger, frustration, and resentment induced by the perception of injustice and discrimination [50]. While prior studies have linked PH to anxiety and depression, research on the association between PH and risk behaviors driven by psychiatric health is limited, especially among BSMM and BTW. The limited literature among these groups suggests that PH is associated with psychological distress and depressive symptoms [13]. However, no study to our knowledge has explored the associations between PH and substance use and behavioral risk sequelae among BSMM and BTW.

There is a need to understand the cumulative burden or police harassment over the life course [51]. Data sources such as the National Longitudinal Study of Adolescent to Adult Health and the Future of Families and Child Wellbeing Study [51, 52], which document criminal legal system involvement over the life course, are important data sources to help us understand how exposure to the criminal legal system affected wellbeing, behavioral health, and both infectious and chronic disease.

Given these disparities, this study aimed to measure longitudinal association between PH (measured at baseline and the 6-month study visits) and HIV/STI-related risk factors including depression, alcohol, drug use, multiple partnerships, and sexually transmitted infection among BSMM and BTW. Using PH measured at the baseline and 6-month study visits, we aim to examine an ordinal exposure (PH reported at neither baseline nor 6 months, PH reported at either visit, PH at both visits) and a binary exposure of persistent PH defined as exposure at both visits (yes versus no).

Methods

Study Design and Participants

Data from the HIV Prevention Trials Network 061 (HPTN 061) study were used for the analysis. The study's enrollment and recruitment methods have been described comprehensively elsewhere [53]. HPTN 061 sought to examine the feasibility and efficacy of interventions to prevent the acquisition and transmission of HIV among BSMM/BTW. Enrollment took place from 2009 to 2010 in six US metropolitan cities: Atlanta, Boston, Los Angeles, New York City, San Francisco, and Washington DC. Participants were recruited directly from the community or as sexual network partners referred by index participants. Individuals were eligible to participate in the study if they were Black, African American, Caribbean Black, or multiethnic Black; identified as a man or were assigned male at birth; were at least 18 years old; reported any condomless anal intercourse with a man in the prior 6 months; resided in the metropolitan area of the research clinic; did not plan to move away during the study period; and provided informed consent for the study. Individuals were ineligible if they were enrolled in any other HIV interventional research study; had been a participant in an HIV vaccine trial; or were a community-recruited participant in a category that had already reached its enrollment cap. Prescreening to determine eligibility was performed either in person or over the telephone.

Participants completed an audio computer-assisted self-interview (ACASI) at baseline, 6-month, and 12-month follow-up that assessed demographic information, HIV risk behaviors,

and other important psychosocial and health-related characteristics. One thousand five hundred fifty-three participants were included in the total sample for the study, of which, 645 participants reported experiencing persistent PH (persistent police harassment was defined as having experienced police harassment at baseline and at the 6-month follow-up visit). Participants participated in up to three study visits.

Police Harassment Exposure

At the baseline and 6-month visits, participants were asked about past 6-month experience with PH motivated by racism or homophobia [35]. We coded their responses into two distinct exposure variables. The first was a three-level ordinal exposure indicating increasing frequency of PH due to either racism or homophobia: level 0 indicates no such harassment at either period (i.e., baseline or the 6-month follow-up visit), level 1 indicates that the participant reported identity-based PH at the baseline visit or at the 6-month follow-up visit, and level 2 indicates that the participant reported identity-based PH at both the baseline and 6-month follow-up visit. The second exposure variable collapsed levels 0 and 1 from the ordinal coding scheme into level 0 to create a binary exposure of PH at both time points (i.e., baseline and 6-month visit) versus no PH or PH at only one time point.

Depression, Substance Use, and Sexually Transmitted Infection Risk Outcomes

Depressive symptoms were measured using the Center for Epidemiologic Studies Depression (CES-D) Scale [54] with those scoring greater than or equal to 16 coded as having symptoms indicative of major depression (yes versus no).

Hazardous alcohol use was coded based on the AUDIT scale score [55], with those with a score greater than or equal to 8 categorized as having unhealthy alcohol use (yes versus no). Methamphetamine use was also a binary outcome, based on any methamphetamine use in the past 6 months (yes versus no). We focused on methamphetamine among participants based on prior analysis on methamphetamine use among this analytic sample as well as evidence linking methamphetamine to sexual risk behaviors and STI risk.

Those whose past 6 months number of male and/or female sex partners was greater than the median were considered to have elevated partnership levels (yes versus no). Condomless anal intercourse with partners who were HIV-positive or had an unknown HIV status (among those HIV negatives at baseline) was binary coded as yes or no responses based on this behavior during follow-up. Syphilis infection was binary coded based on confirmed laboratory diagnosis of syphilis infection.

Covariates

Baseline covariates were selected a priori based on prior research [56, 57] examining relationships with PH, and HIV/STI risk outcomes. These included age, transgender status (measured as yes/no), insufficient income (defined as not having enough money in the household for rent, food, or utilities in the past 6 months) (measured as yes/no), BSMM/BTW who also have sex with women (measured as yes/no), unstable housing (measured as yes/no), education (measured as greater than higher school vs less than or

equal to high school), city of residence, HIV serostatus, and baseline reporting of each of the outcomes.

Statistical Analysis

R version 4.0.5 was used for statistical analyses [58]. We computed scale scores as the mean of non-missing items if fewer than 20% of the scale items were missing. When the percentage of missing items for a scale exceeded 20%, the scale score was not computed and marked as missing [59]. Out of the 1553 participants, 776 (49.9%) were missing information on either a covariate, outcome or the exposure. 417(26.9%) were missing information on exposure; 112 (7.2%) were missing information on covariate only; 453 (29.2%) were missing information on outcome only; 136 (8.8%) were missing information on covariate or outcome. Therefore, multiple imputation was used to reduce bias and increase power in the analyses. Data was imputed 49 times (based on the 49.9% percentage missing information) using predictive mean matching in the “mice” package [60].

The prevalence of baseline demographic information, PH frequency (based on both exposure classifications), and psychosocial outcomes were calculated for the analytic sample. We used modified Poisson regression models with robust standard errors in each of the imputed datasets to estimate unadjusted risk ratios (RR), adjusted risk ratios (aRRs) and 95% confidence intervals (CIs) for associations between frequency of PH over follow-up (reported at the baseline to 6-month visits) and psychosocial outcomes measured at the 12-month visit. Multivariable models controlled for baseline experience of the psychosocial outcomes, multiple demographic and self-report behavioral characteristics (a priori variables) described above [56, 57, 61]. We measured the frequency and prevalence of each covariate by persistent PH and used chi-square tests to assess differences. We also estimated the unweighted risk ratios for associations between the covariates using a Poisson regression model.

Results

At baseline, there were a total of 1553 participants of which 645 reported experiences of PH (Table 1). PH was reported by 84.0% at baseline, 40.3% at 6-month follow-up, and 87.8% at either time point. A total of 41.5% reported PH at both baseline and 6-month follow-up and were considered to have experienced persistent PH. The sample was generally evenly distributed across study sites. At baseline, the median age was 39 years, 93.7% were cisgender men and 6% were transgender women. Approximately 56% reported having sex with men only and 43.5% reported having sex with men and women. One-quarter of the sample was HIV negative (75.1%), 0.2% were HIV-positive (acute), and 22.2% were HIV-positive (non-acute). Approximately half the sample had less than a high school education (52.5%) and had insufficient income (55.2%); 9.5% were unstably housed.

Correlates of Persistent PH

Consistent with related publications on the HPTN061 sample [62–64] we used Atlanta as the referent group for consistency and found that persistent PH was twice as common among BSMM/BTW in New York and Washington and was comparable among all other

cities (Table 1). Persistent PH was more common among transgender women, men who have sex with women and men, HIV-negative participants, those with less than high school education, insufficient income, and unstable housing. Participants with baseline depression, unhealthy alcohol use, and multiple partnerships had between 30 and 60% elevated risk of experiencing persistent PH over follow-up, while those who reported methamphetamine use at baseline had nearly double the risk. When examining socio-demographic correlates, having a history of insufficient income, having less than a high school education, and having unstable housing were associated with persistent PH. When examining mental health and drug use history, we noted that depression was associated with PH and use of methamphetamine but not hazardous alcohol use (all measured in the 6 months prior to baseline).

Associations Between Police Harassment and Depressive Symptoms

In adjusted analyses, we found that each one-unit increase in the ordinal PH exposure variable was associated with increased risk of depressive symptoms at the 12-month follow-up visit (aRR: 1.21, 95% CI: 1.07–1.36). Persistent PH versus no PH or PH at one point in time over follow-up (the referent) was also associated with an increased risk of depressive symptoms (aRR: 1.26, 95% CI; 1.07, 1.47).

Associations Between Police Harassment and Hazardous Alcohol Use

In unadjusted models, one-unit increase in the ordinal PH exposure variable was associated with greater than a 30% increased risk of subsequent hazardous alcohol use (RR: 1.33, 1.12–1.57). In the adjusted model, PH was not associated with an increased risk of hazardous unhealthy alcohol use (RR: 1.17, 95% CI: 1.00, 1.36). For the persistent PH model, the risk of hazardous unhealthy alcohol use was 1.16 (95% CI: 0.95, 1.42) after adjustment (Table 2).

Associations Between Police Harassment and Methamphetamine Use

In the unadjusted model, each one-unit increase in the ordinal PH exposure variable was associated with increased risk of subsequent methamphetamine use in the past 6 months (RR: 1.60 95% CI: 1.10, 2.34) (Table 2). After adjustment, the association was attenuated considerably (aRR: 1.15, 95% CI: 0.79, 1.66). Persistent PH was not associated with an increased risk of methamphetamine use in unadjusted or adjusted analyses, (Table 2).

Associations Between Police Harassment and Multiple Partnerships

In the adjusted model, there was evidence of a weak association between the ordinal PH exposure variable and multiple partnerships (aRR; 1.15, 95% CI: 1.03, 1.29). Persistent PH, however, was not associated with multiple partnerships in the adjusted model (aRR: 1.10, 95% CI: 0.99, 1.23).

Associations Between Police Harassment and Condomless Anal Intercourse with HIV +/HIV Unknown Partner (Among Those HIV − at Baseline)

In both unadjusted and adjustment models, neither PH exposure variable was not associated with condomless sex with a partner who was HIV + or had unknown HIV status, among those who were HIV negative at baseline (Table 2).

Associations Between Police Harassment and Syphilis

In adjusted analyses, there was a trend toward an association between ordinal PH and subsequent incident syphilis infection (aRR: 1.43, 95% CI: 0.83, 2.47); the adjusted RR for the association between persistent PH and syphilis was 1.41 (0.66, 2.98).

Discussion

This study is among the first to assess the degree to which police harassment, including persistent police harassment, may potentially play a role not only in adverse mental health outcomes but also in substance use risk and STI/HIV risk indicators. In this sample of BSMM/BTW, when adjusting for socioeconomic factors and baseline risk of the outcomes, there was evidence that PH was associated with depression, hazardous alcohol use, and a 20% increased risk of multiple partnerships. There also was a trend of an association between PH and syphilis risk, though this association was not significant at the 0.05 level given the low prevalence of incident syphilis. These findings provide early evidence to suggest PH may influence modest increases in mental health and physical health of BSMM/BTW.

Our findings align with several other studies, which indicate that PH plays a role in augmenting health-related disparities among metropolitan-dwelling minorities. In addition to the depression risk highlighted in our study, other studies have reported a link between PH and other mental health conditions such as generalized anxiety, psychological distress, and suicidal ideation [45]. Particularly, heightened surveillance and adversarial policing may increase psychological distress among community members, thereby elevating the risk for depression, and in turn producing higher levels of anxiety, among other negative symptomatology. Additionally, the role of gender might be a driving force behind PH. For instance, one study found that aggressive and intrusive neighborhood-level policing was a gendered phenomenon and reported that Black men were more likely to experience feelings of nervousness, effort, and worthlessness compared to women [65].

However, less is empirically known about the ways in which gender, race, and sexuality interact with respect to PH to produce adverse health-related outcomes. It is likely that the combination of these identity factors trigger latent or overt biases that result in increased discriminatory policing practices directed towards BSMM/BTW.

Substance use and sex risk findings in our study might also be associated with prolonged exposure to stress induced by persistent PH. Specifically, high concentrations of police presence in minority communities will likely interplay with other risk factors such as social status, level of disadvantage, and low social support, which are associated with increased exposure to stress and the development of maladaptive coping strategies and

poor self-mastery [66]. While we adjusted for socioeconomic factors in our model, the environmental context of many disadvantaged BSMM may provide fertile grounds for PH to operate through distinct pathways, such as elevated stress levels, thereby impacting health. This view aligns with other studies, which suggest that stress is a significant contributor to the initiation and continued use of illicit substances [67]. Further, stress might also synergize with factors closely linked to PH such as incarceration and stigma, to disrupt social networks and increase sex risk behaviors, including multiple partnerships [68].

Findings from this study highlight the need for further longitudinal research on how PH, in particular persistent PH, may translate to mental health and in turn physical health outcomes. If additional studies confirm these exploratory analyses, the findings will provide further empirical support that PH impacts health, not only due to physical risk during the police encounter, but long-term risk to health due to the impact of this exposure persisting after the actual encounter ends. Future studies should also examine how incarceration may mediate the relationship between police harassment and different health outcomes, particularly among larger populations. Additionally, a limited body of research indicates that the effect of PH might begin much earlier in the life span [69]. Future lines of research should employ a life course perspective to advance understanding of how exposure to PH early in life stimulates adverse pathways and shape contemporary outcome trajectories for BSMM/BTW.

Results such as these, taken with the extant literature and new studies on the effects of policing, could provide important empirical evidence of widespread and long-term effects of disproportionate police contact on the health of BSMM/BTW. Such findings would strengthen the case for alternative approaches to policing (which may include no longer criminalize drug use or possession) [70] and training of officers to engage with community members through dialogue rather than harassment and intimidation. Our findings also would highlight the need for programs to support the health of BSMM/BTW affected by PH; such programs should utilize social work and public health workers to address psychiatric, substance use, and infectious disease risk in this group.

Limitations

Findings from this study should be interpreted in the context of several limitations. First, the study utilized self-reported perceptions of PH and mental health, substance, and behavioral risk outcomes, which may have been influenced by social desirability, recall, and same-source bias. We also note that police harassment motivated by race or sexual identity was based on the perception of the participant, and as a result, the results should be interpreted within this context. Additionally, since both exposure and outcome were self-reported both could be correlated and thus be reflective of personality type. Second, our analyses included a limited sample of BTW. This hindered our ability to contextualize findings to the experiences of BTW. Third, the study experienced a significant amount of loss to follow-up for 12-month interviews (25%), which was attributed to a variety of reasons including death, incarceration, and loss to follow-up. A fourth limitation is that our sample represents a primarily metropolitan sample of participants. This impedes our ability to generalize findings to other geographical contexts, such as rural and suburban areas. Fifth, our sample

was missing a substantial amount (49%) of exposure and outcome information. While multiple imputations were computed, the precision of findings may have been impacted given the magnitude of missing data. Sixth, our analyses were conducted more than a decade after the data was collected. However, given the increased national awareness of PH and the numerous lives lost, our findings are particularly timely and contribute to a growing body of research highlighting the critical public health implications of PH. The sample consisted of participants who reported condomless sex, and as a result, may not be generalizable to BSMM/BTW who are not sexually active or who do not report this sexual risk behavior. Finally, we cannot rule out residual or unmeasured confounders, which may have influenced some of the adjusted analysis results in the study.

Conclusion

This study adds evidence that exposure to PH, including persistent exposure, can influence not only mental health but behavioral risks such as substance use and multiple partnerships that contribute to HIV in BSMM/BTW. This highlights the potential wide-ranging and downstream outcomes of high levels of PH on health including HIV risk in this population. Policies and programs should continue to be implemented to reduce PH to protect the disproportionately impacted populations and reduce HIV/STI risk. Further research is needed in this area to better understand such relationships and tease apart direct and indirect pathways through which PH may influence HIV among BSMM and BTW.

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Data Availability

Access to the data can be provided through an approved Data Use Agreement between our institution (New York University School of Medicine) and the institution with which the user is affiliated. Persons wanting to access the data should communicate with the NYU IRB to initiate a Data Use Agreement (irb-info@nyulangone.org).

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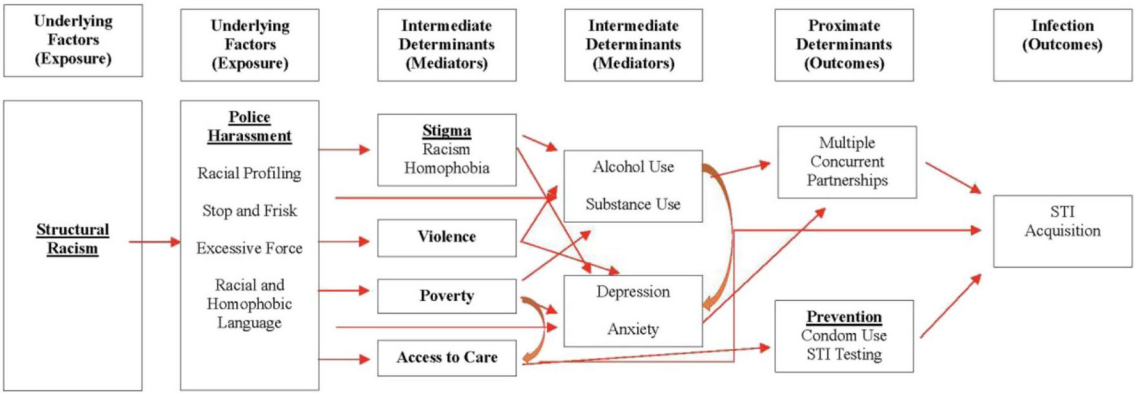

Fig. 1.

Potential pathway between police harassment and selected health outcomes

Table 1

Baseline correlates of persistent police harassment

	Overall (*N* = 1553)	*N* (%) with persistent police harassment (*N* = 645)	Risk ratio for association between characteristic and persistent police harassment	*p* value*
Age				
Mean (SD)	37.7 (11.7)	38.3 (11.4)	Ref	
Median [min, max]	39.0 [18.0, 68.0]	41.0 [18.0, 68.0]	1.01 (1.00, 1.01)	0.014
Missing	4 (0.3%)	0 (0%)		
Insufficient income				
No	690 (44.4%)	238 (34.5%)	Ref	
Yes	858 (55.2%)	407 (47.4%)	1.39 (1.19, 1.64)	< 0.001
Missing	5 (0.3%)	0 (0%)		
Transgender				
No	1455 (93.7%)	599 (41.2%)	Ref	
Yes	63 (6.0%)	46 (49.5%)	1.24 (0.90, 1.65)	0.054
Missing	5 (0.3%)	0 (0%)		
Unstable housing				
Stable	1401 (90.2%)	566 (40.4%)	Ref	
Unstable	148 (9.5%)	79 (53.4%)	1.29 (1.01, 1.62)	0.002
Missing	4 (0.3%)	0 (0%)		
Men who have sex with men and women (MSMW) status				
Men who have sex with men only (MSMO)	872 (56.1%)	304 (34.9%)	Ref	
Men who have sex with men and women (MSMW)	676 (43.5%)	341 (50.4%)	1.50 (1.28, 1.75)	< 0.001
Missing	5 (0.3%)	0 (0%)		
Education				
More than high school	737 (47.5%)	285 (38.7%)		
High school or less	816 (52.5%)	360 (44.1%)	1.20 (1.03, 1.40)	0.001
City				
Atlanta	292 (18.8%)	101 (34.6%)	Ref	< 0.001
Boston	237 (15.3%)	114 (48.1%)	1.42 (1.08, 1.85)	
Los Angeles	283 (18.2%)	112 (39.6%)	1.15 (0.88, 1.51)	
New York City	310 (20.0%)	132 (42.6%)	1.16 (0.89, 1.50)	

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	Overall (*N* = 1553)	*N* (%) with persistent police harassment (*N* = 645)	Risk ratio for association between characteristic and persistent police harassment	*p* value*
San Francisco	204 (13.1%)	107 (52.5%)	1.50 (1.14, 1.97)	
Washington DC	227 (14.6%)	79 (34.8%)	0.94 (0.70, 1.27)	
HIV status at baseline				
HIV negative	1167 (75.1%)	531 (45.5%)	Ref	0.007
HIV + acute	3(0.2%)	1 (33.3%)	0.59 (0.03, 2.62)	
Positive	344 (22.2%)	106 (30.8%)	0.82 (0.66, 1.00)	
Unknown	38 (0.2%)	6 (15.8%)	0.56 (0.22, 1.15)	
Missing	1 (0.1%)	1 (100.0%)		
Depression (CES-D ≥ 16)				
No	808 (52.0%)	319 (39.5%)	Ref	
Yes	664 (42.8%)	304 (45.8%)	1.23 (1.05, 1.44)	< 0.001
Missing	81 (5.2%)	22 (27.2%)		
Hazardous alcohol use/AUDIT ≥ 8				
No	1025 (66.0%)	410 (40.0%)	Ref	
Yes	502 (32.3%)	231 (46.0%)	1.17 (1.00, 1.38)	0.005
Missing	26 (1.7%)	4 (15.4%)		
Methamphetamine use in past 6 months				
No	1299 (83.6%)	533 (41.0%)	Ref	
Yes	137 (8.8%)	69 (50.4%)	1.31 (1.01, 1.67)	0.003
Missing	117 (7.5%)	43 (36.8%)		
Multiple partnership				
No	369 (23.8%)	142 (38.5%)	Ref	
Yes	1178 (75.9%)	503 (42.7%)	1.14 (0.95, 1.37)	0.055
Missing	6 (0.4%)	0 (0%)		
Syphilis				
No	1466 (94.4%)	616 (42.0%)	Ref	
Yes	50 (3.2%)	13 (26.0%)	0.60 (0.33, 0.99)	0.010
Missing	37 (2.4%)	16 (43.2%)		

** p* values from chi-sq test of independence

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Table 2

Longitudinal associations between police harassment frequency (ordinal) and persistent (binary) exposure and depression, substance use, and HIV-related sexual risk outcomes among Black sexual minority men/Black transgender women in HIV prevention trials network 061

	% with outcome	Unadjusted RR[1] (95% confidence interval)	Adjusted* RR[1] (95% confidence interval)
Depression			
Police harassment (ordinal)	N/A	1.36 (1.20, 1.54)	1.21 (1.07, 1.36)
Persistent police harassment (binary)**			
No	124 (22.38%)	Ref	Ref
Yes	226 (35.04%)	1.47 (1.26, 1.72)	1.26 (1.07, 1.47)
Hazardous alcohol use			
Police harassment (ordinal)	N/A	1.33 (1.12, 1.57)	1.17 (1.00, 1.36)
Persistent police harassment (binary)**			
No	90 (16.25%)	Ref	Ref
Yes	151 (23.41%)	1.38 (1.11, 1.72)	1.16 (0.95, 1.42)
Methamphetamine use			
Police harassment (ordinal)	N/A	1.60 (1.10, 2.34)	1.15 (0.79, 1.66)
Persistent police harassment (binary)**			
No	120 (3.79)	Ref	Ref
Yes	208 (7.13)	2.04 (0.83, 5.01)	1.24 (0.79, 1.94)
Multiple partnerships			
Police harassment (ordinal)	N/A	1.15 (1.03, 1.29)	1.10 (0.99, 1.23)
Persistent police harassment (binary)**			
No	179 (32.31)	Ref	Ref
Yes	268 (41.55)	1.28 (1.11, 1.48)	1.20 (1.05, 1.39)
Condomless anal intercourse with HIV +/HIV unknown partner (among those HIV-negative at baseline)			
Police harassment (ordinal)	N/A	0.87 (0.80, 0.95)	0.95 (0.87, 1.03)
Persistent police harassment (binary)**			
No	37 (8.94)	Ref	Ref
Yes	55 (10.36)	0.77 (0.65, 0.91)	0.95 (0.84, 1.07)
Syphilis			
Police harassment (ordinal)	N/A	1.09 (0.64, 1.84)	1.43 (0.83, 2.47)
Persistent police harassment (binary)**			
No	12 (1.32)	Ref	Ref
Yes	14 (2.17)	1.00 (0.48, 2.09)	1.41 (0.66, 2.98)

[1] *RR* risk ratio

* Adjusted for age, insufficient income, transgender status, unstable housing, MSMW, education, city, HIV serostatus, and baseline level of the outcome of model

** Persistent police harassment defined as reporting police harassment at baseline and at the 6-month follow-up visit