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Recent incarceration and other correlates of psychological distress among African American and Latino men who have sex with men

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Abstract

There is a dearth of research on the intersection of incarceration and psychological distress among African American men who have sex with men (AAMSM) and Latino MSM (LMSM), populations which bear a large burden of HIV in the U.S. Recent incarceration is an important context to examine psychological distress given the critical implications it has on health outcomes. Using baseline data from the Latino and African American Men's Project (LAAMP), a multi-site randomized HIV behavioral intervention trial, this paper examined the association between recent incarceration and psychological distress, assessed by the Kessler Psychological Distress Scale (K10). Among 1,482 AAMSM and LMSM (AAMSM: 911, LMSM: 571), we found 768 (52%) had ever been incarcerated, 138 (9.3%) had been incarcerated in the past 3 months (i.e., recent incarceration). After adjusting for race, education, access to resources, current living arrangement, participant-reported HIV status, and substance use, participants who had been recently incarcerated were more likely to have mild psychological distress i.e., K10 score 20–24 (aRRR:1.43, 95% CI: 1.20, 1.71) or severe psychological distress, i.e., K10 score >30 (aRRR: 1.89, 95% CI: 1.22, 2.93) than those without history of incarceration. Future interventions should address the needs of individuals with a recent history incarceration by providing case management and supportive services to AAMSM and LMSM in order to adequately address the confluence of HIV risk and mental health disorders among these populations.

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Disclaimer

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Keywords

incarceration; HIV prevention; men who have sex with men; mental health

Introduction

While the U.S. correctional system has seen population declines since 2008, African American and Latino populations continue to represent more than half of adults incarcerated¹. There continues to be an expanding population of minority men who have previously experienced incarceration². Among African American males, an estimated 33% has ever experienced felony conviction, and 15% has ever been to prison; data among Latinos is lacking due to failures to collect and report ethnicity data³. Sexual minority men are also negatively impacted by incarceration. Gay and bisexual men are three times as likely to be incarcerated compared to general U.S. adult population⁴. Typically, the time leading up to incarceration is predicated by a series of stressful events including interactions with police, arrest, and conviction that may impact mental health^{5,6}. Thus, incarceration often manifests as a significant life event that may lead to negative physical and mental health outcomes⁷⁻⁹. Incarcerated populations often face an intersection of multiple health conditions including psychological distress, substance use, HIV, and mental health disorders^{10,11}. Psychological distress measures assess for anxiety and depressive symptoms which often reflect the presence of a mental disorder¹². The prevalence of psychological distress among the general U.S. population is about 5%^{13,14}. According to the Bureau of Justice Statistics, 26% of people incarcerated in jail and 14% in prison reported mental health problems (i.e. psychological distress, serious psychological distress) in the past 30 days¹³.

Several factors can negatively impact the psychological wellbeing of people who have experienced incarceration^{7,15}. Although there is evidence that incarceration may improve the physical health of some individuals (e.g., HIV care provided during incarceration)¹⁶⁻¹⁸, data suggests that incarceration can exacerbate mental disorders after incarceration when re-entering communities^{10,19}. According to the Bureau of Justice Statistics, 26% of people incarcerated in jail and 14% in prison reported mental health problems in the past 30 days¹³. Incarceration may account or contribute to disparities in mental disorders²⁰⁻²² and HIV among racial and sexual minority men, particularly American men who have sex with men (AAMSM) and Latino MSM (LMSM)^{18,23-25}. Recent estimates suggest a 50% lifetime risk of HIV-infection among AAMSM and 25% among LMSM; in contrast, the lifetime risk for HIV acquisition among white MSM is 9%²⁶. While African American and Latino men have similar and often lower rates of mental disorders than white men; the clinical onset and impact is often more persistent among minorities^{27,28}. Prior studies indicate an elevated risk of mortality after incarceration^{29,30}, particularly in the immediate weeks after release (i.e. recently incarcerated individuals). Two of the leading causes of death post-release from correctional settings are mental health-related, i.e., suicide and drug overdose^{31,32}.

There is a need to expand research on psychological distress and mental health disorders among AAMSM and LMSM to inform future programs that can improve access of mental health services among AAMSM and LMSM populations, particularly those with experiences

of adversity such as incarceration³³. Much of the literature on formerly incarcerated individuals has focused on all-cause mortality³⁴, substance use^{30,35,36} and experiences of violence^{37,38}. Little is known about the impact of incarceration on psychological distress among sexual minority men including AAMSM and LMSM^{39,40}. To address this gap, the goal of the current paper is to examine the association between recent incarceration and psychological distress (in the past four weeks) among AAMSM and LMSM. We hypothesized that recent incarceration, as measured by incarceration in the past 3 months, was significantly associated with elevated severity of psychological distress experienced by AAMSM and LMSM after incarceration.

Methods

Baseline data from the Latino and African American Men's Project (LAAMP), a Centers for Disease Control and Prevention (CDC) - funded multi-site randomized HIV behavioral intervention study of 1,482 (AAMSM: 911, LMSM: 571) were analyzed. AAMSM were enrolled from Baltimore, Chicago, greater Milwaukee, greater Detroit region, and New York City. LMSM were enrolled from Miami and New York City. Data reported here are from baseline interviews conducted from 2007 through 2009. This study was approved by Institutional review boards at each of the study sites. Participants were paid for participation and the compensation varied by study site, ranging from \$25.00 to \$40.00.

Recruitment

Participants were recruited from gay bars, dance clubs, college campuses, health departments, community-based organizations that serve MSM populations as well as referrals from participants and local health providers. A brief screening was conducted to identify eligible men for the studies. Eligibility criteria included: 1) being at least 18 years of age; 2) identifying as African American or Hispanic/Latino; 3) having at least 2 sexual partners in the past 3 months (at least 1 of whom must have been male); 4) engaging in condomless anal sex with a man in the past three months. Participants were ineligible to participate if they identified as transgender, or did not reside in the cities of the study sites.

At the baseline visit, participants confirmed eligibility and provided written informed consent. Participants completed a behavioral assessment using audio computer-assisted self-interview (ACASI) technology. Following completion of the assessment, all participants received HIV risk-reduction counseling. A rapid HIV antibody test was offered if participants reported being HIV-negative or did not know their current HIV status. For the five African American sites, participants were required to take an HIV-test if they indicated their HIV-status as negative or unknown. If they provided documentation that they had been diagnosed with HIV infection, testing was not conducted. HIV-testing was available to all participants at the Latino sites, but it was not conditional for participation in the study. One of the goals at the Latino sites was to examine if participants took an HIV test after completing the intervention. Latino participants had to be 18 to 49 years of age and report being HIV-negative or unknown status during the eligibility screener. Preliminary positive rapid test results at the baseline visit were confirmed by Western blot testing. Newly

diagnosed persons were referred to medical and social services. The full methods have been previously reported elsewhere ²⁵.

Measures

Psychological distress was assessed by the Kessler Psychological Distress Scale (K10) ⁴¹, a 10-item scale of distress based on questions about anxiety and depressive symptoms experienced in the most recent 4 week period. The K10 is a screening instrument and practitioners should make a clinical judgment if an individual needs treatment ⁴¹. The K10 has been used to assess psychological distress among AAMSM ⁴², Latinos ⁴³ as well as gay and bisexual men in the U.S. ⁴⁴. In the current sample, the K10 had a Cronbach's alpha of 0.91, indicating excellent reliability. We added up the participant responses to the 10 questions in the K10, and constructed a 4-level nominal variable using cut-off scores consistent with published literature ⁴¹ to assess severity of psychological distress as follows: <20: likely to have no psychological distress; 20–24: likely to have mild psychological distress; 25–29: likely to have moderate psychological distress, 30 and above: likely to have severe psychological distress.

History of incarceration was assessed by asking “have you ever spent at least one night in jail or prison?” If the answer was affirmative, participants were asked the follow-up question, “was this in the past 3 months” for the recent history of incarceration. A categorical variable of history of incarceration (no history, incarcerated more than 3 months ago, incarcerated within the past 3 months) was created. Sociodemographic factors included age, race (Latino vs. African American), and education (Grade 12, GED or less vs. College, associate or technical degree). Access to resources in the household was assessed by asking the frequency (Never or once a while vs. fairly often or very often) of not having enough money for rent, food or utilities, such as gas, electric and phone. Current living arrangement was assessed with response options “Your own house or apartment,” “Your parent(s) or another family member's house or apartment,” “At someone else's house or apartment”, “In a rooming, boarding, halfway house, or a shelter/welfare hotel,” “On the street(s) (vacant lot, abandoned building, park, etc.)” or “other.” Given the high rates of housing instability among CJ involved populations and racial/ethnic and sexual minority males, a binary variable for current living arrangement was constructed for living in own, family member's or someone else's house or apartment vs. others ⁴⁵. Current HIV status was assessed by one question “What was the result of your most recent HIV test before today?” For participants who never had an HIV test, their HIV status was coded as “unknown.”

Participants were asked about the frequency of substance use, including alcohol, marijuana, ecstasy, powdered cocaine, rock/crack cocaine, methamphetamines/other amphetamines, poppers, club drugs, heroin, Viagra, recreational/prescription drugs. The most commonly used substances in this sample were alcohol and crack/cocaine. The current analyses focused on frequent binge drinking and crack/cocaine use over the last 3 months. Frequent binge drinking was assessed using one of items from the Alcohol Use Disorders Identification Test (AUDIT)-C ⁴⁶ “Over the last 3 months, how often did you have six or more drinks on one occasion?” Frequency of crack/cocaine use was assessed by one question “Over the last 3 months, how often did you use powdered cocaine/rock or crack cocaine?” Response

options for both questions being “never,” “less than once a month,” “once a month,” “2 or 3 days a month,” “once a week,” or “2 or 3 days a week.” If participant responded “once a week” or “2 or 3 days a week” to any of these questions, they were classified as frequent binge drinker or frequent crack/cocaine users. A 4-level nominal variable was constructed as “0-not frequent binge drinker or frequent crack/cocaine user,” “1-frequent binge drinker, but not frequent crack/cocaine user,” “2- frequent crack/cocaine user, but not frequent binge drinker,” and “3-frequent binger drinker and frequent crack/cocaine user”⁴⁷.

Data Analysis

Bivariate associations between psychological distress and history of incarceration, sociodemographics, HIV status, and substance use were examined using chi-square statistics. Multinomial logistic regression models were used to assess the relative risk ratio (RRR) for participants with recent history of incarceration for mild, moderate, or severe psychological distress as compared to those without recent history of incarceration at baseline. Relative risk allows for the comparisons of probability of an outcome occurring within a group or subpopulation, while odds ratios compare the likelihood an on outcome between two groups⁴⁵. Other covariates that were statistically significant ($p < .05$) associated with psychological distress in the bivariate models were entered into a multivariate model. Generalized estimating equations (GEE) were used to account for clustering from the same study site. Statistical analyses were performed using Stata Version 15.0 (College Station, TX).

Results

Data from a total of 1,482 participants were included in the current analysis. Overall, 768 participants (52%) had ever been incarcerated, 630 (43%) had been incarcerated more than 3 months ago and 138 (9.3%) had been incarcerated in the previous 3 months (i.e., recent incarceration). Thirty-two AAMSM participants (23%) who had been incarcerated and 106 LMSM (77%) experienced recent incarceration, respectively. Psychological distress was reported by 610 participants (41%). Among those with recent incarceration ($n=138$), 78 participants (57%) reported mild to severe psychological distress and 60 participants (43%) reported no psychological distress. Participants without recent incarceration ($n=1,344$), 812 (60%) reported no psychological distress and 532 (40%) reported mild to severe psychological distress. Participants’ socio-demographic and behavioral background information is provided in Table 1.

Results of the adjusted multinomial logistic regression model are presented in Table 2. After adjusting for race, education, access to resources, current living arrangement, self-reported HIV status, and substance use, participants who had recent incarceration were more likely to have mild psychological distress, i.e., K10 score 20–24 (aRRR: 1.43, 95% CI: 1.20, 1.71) or severe psychological distress, i.e., K10 score >30 (aRRR: 1.89, 95% CI: 1.22, 2.93) than those with no history of incarceration. As compared to those who never or once in a while had insufficient resources, participants with high frequency of insufficient money for rent, food or utilities were more likely to have mild psychological distress (aRRR: 1.43, 95% CI: 1.04, 1.98), moderate psychological distress (aRRR: 2.14, 95% CI: 1.30, 3.54), or severe

psychological distress (aRRR: 3.57, 95% CI: 2.40, 5.32). Participants with an unstable living environment were more likely to have severe psychological distress (aRRR: 1.79, 95% CI: 1.14, 2.81) than those with stable living environment. Finally, frequent binge drinking use was significantly associated with mild psychological distress (aRRR: 1.78, 95% CI: 1.17, 2.73), moderate psychological distress (aRRR: 2.69, 95% CI: 1.76, 4.11) and severe psychological distress (aRRR: 2.29, 95% CI: 1.37, 3.82).

Discussion

Our results indicate the burden of psychological distress among AAMSM and LMSM who have recently experienced incarceration. Mental health has critical implications for physical health.^{12,48} Mental health disorders can affect one's ability to engage in health promoting behaviors such as consistent condom use^{49,50}, HIV testing⁵¹, PrEP uptake^{52,53} and utilization of substance abuse treatment⁵⁴. Psychological distress has also been associated with antiretroviral adherence^{55,56}. These factors inform HIV outcomes and the physical health of these populations. Moreover, data suggests that most adults with mental health disorders in the U.S. do not receive the care they need with African Americans and Latinos utilizing mental health services at about one-half the rate of white Americans⁵⁷.

Previous studies have assessed psychological distress among AAMSM and among LMSM, but none within the contexts of recent incarceration (e.g., probation, parole, community re-entry). Incarceration has been found to negatively impact housing stability⁵⁸; and economic stability^{59,60}. However, correctional settings offer a possible intervention point for addressing the trajectories of mental disorders (e.g. motivational interviewing, cognitive behavioral therapy etc.) as well as HIV risk^{61,62}. Recent studies suggest opportunities exist for PrEP screening and linkage⁶³ as well as mental health screening⁶⁴ in correctional settings. In community re-entry, social supports such as community health workers⁶⁵ or peer navigators⁶⁶ and culturally competent clinic environments⁶⁷ may assist AAMSM and LMSM in addressing their mental health while building trust between these populations and their health care providers. Another finding from the current study is that participants who reported financial insecurity, housing instability, or substance use had a greater likelihood of having elevated severity of psychological distress. This is consistent with previous studies that have examined the intersection of mental health status, housing, and financial stability among those with histories of recent incarceration⁶⁸. Furthermore, studies have found those with co-occurring substance use and mental disorders are more likely to be re-incarcerated^{69,70}. Individual stressors such as housing stability and financial stability may influence initiation of HIV risk behaviors or negative coping responses (i.e., substance use)^{71,72}. Thus, there is a need to integrate social services and interventions to address housing, financial stability and substance use among AAMSM and LMSM with recent histories of incarceration.

Limitations of the current study should be noted. Participants were recruited using convenience sampling and thus may not be representative of AAMSM and LMSM communities beyond the study sites. The data presented are from a multi-site study of urban cities and therefore may not be representative of rural areas or other cities. Despite these limitations, the current study presents urban cities in the Northeast, Mideast, and

South; thus, there is geographic diversity among the sample population. This study relied on participants' reports of their behaviors, which are subject to recall and social desirability bias. Cross-sectional data limit our ability to draw a causal inference between incarceration and mental health. Focusing on recent psychological distress may not capture changes in mental health over time that predate the onset of incarceration. In addition, reasons for incarceration were not explored in the current study. Future studies should explore how reasons for incarceration, such as immigration detention, may operate as additive stressors that impact the mental health of AAMSM and LMSM. For public health interventions with limited resources, we need to identify sub-populations at elevated risk. Individuals with histories of incarceration often face reduced social support⁷³, family breakdown¹⁹, social rejection and stigma^{74,75}. Integrating culturally competent screening for mental health⁷⁶ and social services^{77,78} in correctional settings may support AAMSM and LMSM in managing their mental health and HIV risk. Interventions must address the different ways that recent incarceration intersects with HIV risk and mental health status among AAMSM and LMSM.

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References

1. Karstedt S, Bergin T, Koch M. Critical Junctures and Conditions of Change: Exploring the Fall of Prison Populations in US States. *Social & Legal Studies*. 2018;0964663917747342.
2. Phelps MS. Mass probation: Toward a more robust theory of state variation in punishment. *Punishment & society*. 2017;19(1):53–73. [PubMed: 29937694]
3. Shannon SK, Uggen C, Schnittker J, Thompson M, Wakefield S, Massoglia M. The Growth, Scope, and Spatial Distribution of People With Felony Records in the United States, 1948–2010. *Demography*. 2017;54(5):1795–1818. [PubMed: 28895078]
4. Meyer IH, Flores AR, Stemple L, Romero AP, Wilson BD, Herman JL. Incarceration rates and traits of sexual minorities in the United States: National Inmate Survey, 2011–2012. *American journal of public health*. 2017;107(2):267–273. [PubMed: 27997242]
5. Constantine RJ, Petrila J, Andel R, et al. Arrest trajectories of adult offenders with a serious mental illness. *Psychology, Public Policy, and Law*. 2010;16(4):319.
6. Rich JA, Grey CM. Pathways to recurrent trauma among young black men: traumatic stress, substance use, and the “code of the street”. *American Journal of Public Health*. 2005;95(5):816–824. [PubMed: 15855457]
7. Jäggi LJ, Mezuk B, Watkins DC, Jackson JS. The Relationship between trauma, arrest, and incarceration history among Black Americans: Findings from the National Survey of American Life. *Society and mental health*. 2016;6(3):187–206. [PubMed: 27795871]
8. Fazel S, Hayes AJ, Bartellas K, Clerici M, Trestman R. Mental health of prisoners: prevalence, adverse outcomes, and interventions. *The Lancet Psychiatry*. 2016;3(9):871–881. [PubMed: 27426440]
9. Decker SH, Ortiz N, Spohn C, Hedberg E. Criminal stigma, race, and ethnicity: The consequences of imprisonment for employment. *Journal of Criminal Justice*. 2015;43(2):108–121.
10. Wildeman C, Wang EA. Mass incarceration, public health, and widening inequality in the USA. *The Lancet*. 2017;389(10077):1464–1474.

11. Baidawi S Older prisoners: Psychological distress and associations with mental health history, cognitive functioning, socio-demographic, and criminal justice factors. *International psychogeriatrics*. 2016;28(3):385–395. [PubMed: 26572855]
12. Drapeau A, Marchand A, Beaulieu-Prévost D. Epidemiology of psychological distress. In: *Mental illnesses-understanding, prediction and control*. InTech; 2012.
13. Bronson J, Berzofsky M. Indicators of Mental Health Problems Reported by Prisoners and Jail Inmates, 2011–12. Bureau of Justice Statistics. 2017.
14. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. *Archives of general psychiatry*. 2003;60(2):184–189. [PubMed: 12578436]
15. Wolff N, Caravaca Sánchez F. Associations Among Psychological Distress, Adverse Childhood Experiences, Social Support, and Resilience in Incarcerate Men. *Criminal Justice and Behavior*. 2019;46(11):1630–1649.
16. Schneider JA, Kozloski M, Michaels S, et al. Criminal justice involvement history is associated with better HIV care continuum metrics among a population-based sample of young Black men who have sex with men. *AIDS (London, England)*. 2017;31(1):159.
17. Mohan AR, Thomson P, Leslie SJ, Dimova E, Haw S, McKay JA. A systematic review of interventions to improve health factors or behaviors of the cardiovascular health of prisoners during incarceration. *Journal of Cardiovascular Nursing*. 2018;33(1):72–81.
18. Iroh PA, Mayo H, Nijhawan AE. The HIV care cascade before, during, and after incarceration: a systematic review and data synthesis. *American journal of public health*. 2015;105(7):e5–e16.
19. Western B, Braga AA, Davis J, Sirois C. Stress and hardship after prison. *American Journal of Sociology*. 2015;120(5):1512–1547.
20. Begun AL, Early TJ, Hodge A. Mental health and substance abuse service engagement by men and women during community reentry following incarceration. *Administration and Policy in Mental Health and Mental Health Services Research*. 2016;43(2):207–218. [PubMed: 25663094]
21. Matejkowski J, Ostermann M. Serious mental illness, criminal risk, parole supervision, and recidivism: Testing of conditional effects. *Law and human behavior*. 2015;39(1):75. [PubMed: 24933170]
22. Hatzenbuehler ML, Keyes K, Hamilton A, Uddin M, Galea S. The collateral damage of mass incarceration: Risk of psychiatric morbidity among nonincarcerated residents of high-incarceration neighborhoods. *American Journal of Public Health (ajph)*. 2015.
23. Milloy M-J, Montaner JS, Wood E. Incarceration of people living with HIV/AIDS: implications for treatment-as-prevention. *Current HIV/AIDS Reports*. 2014;11(3):308–316. [PubMed: 24962285]
24. Wilson PA, Nanin J, Amesty S, Wallace S, Cherenack EM, Fullilove R. Using syndemic theory to understand vulnerability to HIV infection among Black and Latino men in New York City. *Journal of Urban Health*. 2014;91(5):983–998. [PubMed: 25155096]
25. Latkin C, Yang C, Tobin K, Roebuck G, Spikes P, Patterson J. Social network predictors of disclosure of MSM behavior and HIV-positive serostatus among African American MSM in Baltimore, Maryland. *AIDS and Behavior*. 2012;16(3):535–542. [PubMed: 21811844]
26. Hess KL, Hu X, Lansky A, Mermin J, Hall HI. Lifetime risk of a diagnosis of HIV infection in the United States. *Annals of epidemiology*. 2017;27(4):238–243. [PubMed: 28325538]
27. Budhwani H, Hearld KR, Chavez-Yenter D. Depression in racial and ethnic minorities: the impact of nativity and discrimination. *Journal of racial and ethnic health disparities*. 2015;2(1):34–42. [PubMed: 26863239]
28. Blumberg SJ, Clarke TC, Blackwell DL. Racial and ethnic disparities in men’s use of mental health treatments. US Department of Health and Human Services, Centers for Disease Control and ...; 2015.
29. Lim S, Harris TG, Nash D, Lennon MC, Thorpe LE. All-cause, drug-related, and HIV-related mortality risk by trajectories of jail incarceration and homelessness among adults in New York City. *American journal of epidemiology*. 2015;181(4):261–270. [PubMed: 25660082]
30. Binswanger IA, Blatchford PJ, Mueller SR, Stern MF. Mortality after prison release: opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Annals of internal medicine*. 2013;159(9):592–600. [PubMed: 24189594]

31. Barry LC, Steffens DC, Covinsky KE, Conwell Y, Li Y, Byers AL. Increased risk of suicide attempts and unintended death among those transitioning from prison to community in later life. *The American Journal of Geriatric Psychiatry*. 2018;26(11):1165–1174. [PubMed: 30146371]
32. Merrall EL, Kariminia A, Binswanger IA, et al. Meta-analysis of drug-related deaths soon after release from prison. *Addiction*. 2010;105(9):1545–1554. [PubMed: 20579009]
33. English D, Rendina HJ, Parsons JT. The effects of intersecting stigma: A longitudinal examination of minority stress, mental health, and substance use among Black, Latino, and multiracial gay and bisexual men. *Psychology of violence* 2018;8(6):669. [PubMed: 30881729]
34. Zlodre J, Fazel S. All-cause and external mortality in released prisoners: systematic review and meta-analysis. *American journal of public health*. 2012;102(12):e67–e75. [PubMed: 23078476]
35. Chang Z, Lichtenstein P, Larsson H, Fazel S. Substance use disorders, psychiatric disorders, and mortality after release from prison: a nationwide longitudinal cohort study. *The Lancet Psychiatry*. 2015;2(5):422–430. [PubMed: 26360286]
36. Fazel S, Yoon IA, Hayes AJ. Substance use disorders in prisoners: an updated systematic review and meta-regression analysis in recently incarcerated men and women. *Addiction*. 2017;112(10):1725–1739. [PubMed: 28543749]
37. Lim S, Seligson AL, Parvez FM, et al. Risks of drug-related death, suicide, and homicide during the immediate post-release period among people released from New York City jails, 2001–2005. *American journal of epidemiology*. 2012;175(6):519–526. [PubMed: 22331462]
38. Hotton A, Quinn K, Schneider J, Voisin D. Exposure to community violence and substance use among Black men who have sex with men: examining the role of psychological distress and criminal justice involvement. *AIDS care*. 2019;31(3):370–378. [PubMed: 30280579]
39. Barragán A, Yamada A-M, Gilreath TD. Psychological Distress Behavioral Patterns Among Latinos: We Don't See Ourselves as Worthless. *Community Mental Health Journal*. 2018:1–9. [PubMed: 28378300]
40. Quinn K, Voisin DR, Bouris A, Schneider J. Psychological distress, drug use, sexual risks and medication adherence among young HIV-positive Black men who have sex with men: exposure to community violence matters. *AIDS care*. 2016;28(7):866–872. [PubMed: 26917328]
41. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological medicine*. 2002;32(6):959–976. [PubMed: 12214795]
42. Du Bois SN, Guy AA, Legate N. Testing the Partnership-Health Association among African American Men Who Have Sex with Men. *Journal of Black Sexuality and Relationships*. 2018;4(4):33–51.
43. Chae DH, Ayala G. Sexual orientation and sexual behavior among Latino and Asian Americans: Implications for unfair treatment and psychological distress. *Journal of Sex Research*. 2010;47(5):451–459. [PubMed: 19626536]
44. Burgess K, Parkhill G, Wiggins J, Ruth S, Stoovè M. Re-Wired: treatment and peer support for men who have sex with men who use methamphetamine. *Sexual health*. 2018;15(2):157–159. [PubMed: 29754597]
45. Anderson-Carpenter KD, Fletcher JB, Reback CJ. Associations Between Methamphetamine Use, Housing Status, and Incarceration Rates Among Men Who Have Sex With Men and Transgender Women. *Journal of drug issues*. 2017;47(3):383–395. [PubMed: 28670005]
46. Frank D, DeBenedetti AF, Volk RJ, Williams EC, Kivlahan DR, Bradley KA. Effectiveness of the AUDIT-C as a screening test for alcohol misuse in three race/ethnic groups. *Journal of General Internal Medicine*. 2008;23(6):781–787. [PubMed: 18421511]
47. Zaller N, Yang C, Operario D, et al. Alcohol and cocaine use among Latino and African American MSM in 6 US cities. *Journal of substance abuse treatment*. 2017;80:26. [PubMed: 28755769]
48. Scott KM, Lim C, Al-Hamzawi A, et al. Association of mental disorders with subsequent chronic physical conditions: world mental health surveys from 17 countries. *JAMA psychiatry*. 2016;73(2):150–158. [PubMed: 26719969]
49. Pachankis JE, Hatzenbuehler ML, Rendina HJ, Safren SA, Parsons JT. LGB-affirmative cognitive-behavioral therapy for young adult gay and bisexual men: A randomized controlled trial

- of a transdiagnostic minority stress approach. *Journal of consulting and clinical psychology*. 2015;83(5):875. [PubMed: 26147563]
50. Pandor A, Kaltenthaler E, Higgins A, et al. Sexual health risk reduction interventions for people with severe mental illness: a systematic review. *BMC public health*. 2015;15(1):138. [PubMed: 25886371]
 51. Mangurian C, Cournos F, Schillinger D, et al. Low rates of HIV testing among adults with severe mental illness receiving care in community mental health settings. *Psychiatric Services*. 2017;68(5):443–448. [PubMed: 28093055]
 52. Taylor SW, Mayer KH, Elsesser SM, Mimiaga MJ, O’Cleirigh C, Safren SA. Optimizing content for pre-exposure prophylaxis (PrEP) counseling for men who have sex with men: perspectives of PrEP users and high-risk PrEP naive men. *AIDS and Behavior*. 2014;18(5):871–879. [PubMed: 24077928]
 53. Closson EF, Mitty JA, Malone J, Mayer KH, Mimiaga MJ. Exploring strategies for PrEP adherence and dosing preferences in the context of sexualized recreational drug use among MSM: a qualitative study. *AIDS care*. 2018;30(2):191–198. [PubMed: 28830220]
 54. Priester MA, Browne T, Iachini A, Clone S, DeHart D, Seay KD. Treatment access barriers and disparities among individuals with co-occurring mental health and substance use disorders: an integrative literature review. *Journal of substance abuse treatment*. 2016;61:47–59. [PubMed: 26531892]
 55. Waldrop-Valverde D, Valverde E. Homelessness and psychological distress as contributors to antiretroviral nonadherence in HIV-positive injecting drug users. *AIDS Patient Care & STDs*. 2005;19(5):326–334. [PubMed: 15916495]
 56. Adewuya AO, Afolabi MO, Ola BA, et al. The effect of psychological distress on medication adherence in persons with HIV infection in Nigeria. *Psychosomatics*. 2010;51(1):68–73. [PubMed: 20118443]
 57. SAMHSA. Racial/ethnic differences in mental health service use among adults. Substance Abuse and Mental Health Services Administration, Rockville. SMA-15–4906. Rockville, MD: Substance Abuse and Mental Health Services ...;2015.
 58. Geller A, Curtis MA. A sort of homecoming: Incarceration and the housing security of urban men. *Social Science Research*. 2011;40(4):1196–1213. [PubMed: 21927519]
 59. Sobol NL. Fighting Fines & Fees: Borrowing from Consumer Law to Combat Criminal Justice Debt Abuses. *U Colo L Rev*. 2017;88:841.
 60. Harris A, Evans H, Beckett K. Courtesy stigma and monetary sanctions: Toward a socio-cultural theory of punishment. *American Sociological Review*. 2011;76(2):234–264.
 61. Taxman FS, Perdoni ML, Caudy M. The plight of providing appropriate substance abuse treatment services to offenders: Modeling the gaps in service delivery. *Victims & Offenders*. 2013;8(1):70–93.
 62. El-Bassel N, Gilbert L, Goddard-Eckrich D, et al. Efficacy of a group-based multimedia HIV prevention intervention for drug-involved women under community supervision: Project WORTH. *PloS one*. 2014;9(11):e111528. [PubMed: 25372149]
 63. Brinkley-Rubinstein L, Dauria E, Tolou-Shams M, et al. The path to implementation of HIV pre-exposure prophylaxis for people involved in criminal justice systems. *Current HIV/AIDS Reports*. 2018;15(2):93–95. [PubMed: 29516265]
 64. Flatt JD, Williams BA, Barnes D, Goldenson J, Ahalt C. Post-traumatic stress disorder symptoms and associated health and social vulnerabilities in older jail inmates. *Aging & mental health*. 2017;21(10):1106–1112. [PubMed: 27367335]
 65. Zaller ND, Holmes L, Dyl AC, et al. Linkage to treatment and supportive services among HIV-positive ex-offenders in Project Bridge. *Journal of Health Care for the Poor and Underserved*. 2008;19(2):522–531. [PubMed: 18469423]
 66. Shangani S, Escudero D, Kirwa K, Harrison A, Marshall B, Operario D. Effectiveness of peer-led interventions to increase HIV testing among men who have sex with men: a systematic review and meta-analysis. *AIDS care*. 2017;29(8):1003–1013. [PubMed: 28150501]

67. Grieb SM, Kerrigan D, Tepper V, Ellen J, Sibinga E. The Clinic Environment as a Form of Social Support for Adolescents and Young Adults Living with HIV. *AIDS patient care and STDs*. 2018;32(5):208–213. [PubMed: 29688746]
68. Turney K, Schneider D. Incarceration and household asset ownership. *Demography*. 2016;53(6):2075–2103. [PubMed: 27785712]
69. Wilson AB, Draine J, Hadley T, Metraux S, Evans A. Examining the impact of mental illness and substance use on recidivism in a county jail. *International Journal of Law and Psychiatry*. 2011;34(4):264–268. [PubMed: 21839518]
70. Jaffe A, Du J, Huang D, Hser Y-I. Drug-abusing offenders with comorbid mental disorders: Problem severity, treatment participation, and recidivism. *Journal of substance abuse treatment*. 2012;43(2):244–250. [PubMed: 22305234]
71. German D, Latkin CA. Social stability and HIV risk behavior: evaluating the role of accumulated vulnerability. *AIDS and Behavior*. 2012;16(1):168–178. [PubMed: 21259043]
72. German D, Latkin CA. Social stability and health: exploring multidimensional social disadvantage. *Journal of Urban Health*. 2012;89(1):19–35. [PubMed: 22131164]
73. Cochran JC, Mears DP, Bales WD, Stewart EA. Spatial distance, community disadvantage, and racial and ethnic variation in prison inmate access to social ties. *Journal of Research in Crime and Delinquency*. 2016;53(2):220–254.
74. Whiteside YO, White JJ, Jones KT. Addressing Social Determinants of Health Among HIV Positive Men Who Have Sex with Men (MSM): The Need for Synergy. In: *Understanding Prevention for HIV Positive Gay Men*. Springer; 2017:327–347.
75. Moore K, Stuewig J, Tangney J. Jail inmates' perceived and anticipated stigma: Implications for post-release functioning. *Self and Identity*. 2013;12(5):527–547. [PubMed: 25045324]
76. Koester KA, Morewitz M, Pearson C, et al. Patient navigation facilitates medical and social services engagement among HIV-infected individuals leaving jail and returning to the community. *AIDS patient care and STDs*. 2014;28(2):82–90. [PubMed: 24517539]
77. Nelson LE, Wilton L, Moineddin R, et al. Economic, legal, and social hardships associated with HIV risk among black men who have sex with men in six US cities. *Journal of Urban Health*. 2016;93(1):170–188. [PubMed: 26830422]
78. Mizuno Y, Borkowf CB, Ayala G, Carballo-Diéguez A, Millett GA. Correlates of sexual risk for HIV among US-born and foreign-born Latino men who have sex with men (MSM): an analysis from the Brothers y Hermanos Study. *Journal of immigrant and minority health*. 2015;17(1):47–55. [PubMed: 23949695]

Table 1. Socio-demographic characteristics and history of incarceration of 1482 Latino and African-American men who have sex with men (LAAMP)

	Total sample (n = 1482)	No psychological distress (n=872)	Mild psychological distress (n=279)	Moderate psychological distress (n=167)	Severe psychological distress (n=164)	p-Value*
Had ever been incarcerated						
No	714(48%)	464(53%)	126(45%)	69(41%)	55(34%)	
Yes	768(52%)	408(47%)	153(55%)	98(59%)	109(67%)	<0.001
Have been incarcerated in the past 3 months						
No	1344(91%)	812(93%)	246(88%)	149(89%)	137(84%)	
Yes	138(9%)	60(7%)	33(12%)	18(11%)	27(16%)	<0.001
History of incarceration						
No history	714(48%)	464(53%)	126(45%)	69(41%)	55(34%)	
more than 3 months ago	630(43%)	348(40%)	120(43%)	80(48%)	82(50%)	
in the past 3 months	138(9%)	60(7%)	33(12%)	18(11%)	27(16%)	<0.001
Race						
Latino	571(39%)	376(43%)	94(34%)	61(37%)	40(24%)	
AA/Black	911(61%)	496(57%)	185(66%)	106(63%)	124(76%)	<0.001
Age						
< 24	288(19%)	161(18%)	57(20%)	38(23%)	32(19%)	
25–34	292(20%)	172(20%)	55(20%)	32(19%)	33(20%)	
35–44	504(34%)	297(34%)	99(36%)	56(34%)	52(32%)	
> 45	398(27%)	242(28%)	68(24%)	41(24%)	47(29%)	0.945
Education						
Grade 12, GED or less	793(54%)	433(50%)	156(56%)	97(58%)	107(65%)	
College, associate or technical degree	689(46%)	439(50%)	123(44%)	70(42%)	57(35%)	0.001
How often was there not enough money in the household for rent, food or utilities						
Never or once a while	1162(78%)	738(85%)	216(77%)	116(70%)	92(56%)	
Fairly often or very often	320(22%)	134(15%)	63(23%)	51(30%)	72(44%)	<0.001
Current living arrangement						
House/apartment (own, family member's or some else's)	1273(86%)	772(89%)	235(84%)	138(83%)	128(78%)	

	Total sample (n = 1482)	No psychological distress (n=872)	Mild psychological distress (n=279)	Moderate psychological distress (n=167)	Severe psychological distress (n=164)	p-Value*
Rooming, boarding, halfway house/shelter/welfare hotel, street or others	209(14%)	100(10%)	44(16%)	29(17%)	36(22%)	0.001
Sexual identity						
Homosexual/gay /same gender loving	950(64%)	570(65%)	173(62%)	105(62%)	102(65%)	
Heterosexual/straight	47(3%)	25(3%)	8(3%)	8(4%)	8(3%)	
Bisexual	426(29%)	240(28%)	91(33%)	47(28%)	48(29%)	
Queer/not sure/ questioning/other	59(4%)	37(4%)	7(2%)	8(4%)	7(3%)	0.743
Self-reported HIV status						
Positive	426(29%)	219(25%)	91(33%)	59(36%)	57(35%)	
Unknown	394(26%)	227(26%)	77(27%)	39(23%)	51(31%)	
Negative	662(45%)	426(49%)	111(40%)	69(41%)	56(34%)	0.001
Substance Use						
Not frequent binge drinker or frequent stimulant use (cocaine/crack)	1063(72%)	700(80%)	181(65%)	95(57%)	87(53%)	
Frequent binge drinker	181(12%)	84(10%)	39(14%)	31(19%)	27(16%)	
Frequent stimulant use (cocaine/crack)	166(11%)	66(8%)	39(14%)	31(19%)	30(18%)	
Frequent binge drinker and stimulant use	72(5%)	22(2%)	20(7%)	10(5%)	20(13%)	<0.001

* chi-square statistics

Adjusted multinomial logistic regression models for psychological distress among Latino and African-American men who have sex with men (n=1,482) (LAAMP)

Table 2.

	Mild psychological distress aRRR (95% CI)	Moderate psychological distress aRRR (95% CI)	Severe psychological distress aRRR (95% CI)
History of incarceration			
No history	Reference	Reference	Reference
more than 3 months ago	0.97(0.84,1.13)	1.12(0.73,1.74)	1.22(0.85,1.75)
in the past 3 months	1.43(1.20,1.71)***	1.36(0.69,2.69)	1.89(1.22,2.93)**
Race			
Latino	Reference	Reference	Reference
African American/Black	1.13(0.78,1.64)	0.72(0.25,2.11)	2.08(1.05, 4.39)*
Education			
Grade 12, GED or less	Reference	Reference	Reference
College, associate or technical degree or higher	0.86(0.64,1.16)	0.81(0.69,0.96)*	0.67(0.57,0.80)***
How often was there not enough money in the household for rent, food or utilities			
Never or once a while	Reference	Reference	Reference
Fairly often or very often	1.43(1.04,1.98)*	2.14(1.30, 3.54)*	3.57(2.40, 5.32)***
Current living arrangement			
House/apartment (own, family member's or some else's)	Reference	Reference	Reference
Rooming, boarding, halfway house/ shelter/welfare hotel	1.33(0.71,2.50)	1.48(0.84,2.62)	1.79(1.14,2.81)*
Self-reported HIV status			
Positive	Reference	Reference	Reference
Unknown	0.83(0.51,1.35)	0.67(0.41, 1.10)	0.95 (0.37, 2.48)
Negative	0.75(0.37,1.52)	0.53 (0.23,1.24)	1.12 (0.34, 3.72)
Substance Use			
Not frequent binge drinker or frequent stimulant use (cocaine/crack)	Reference	Reference	Reference
Frequent binge drinker	1.78(1.17,2.73)**	2.69 (1.76, 4.11)***	2.29 (1.37, 3.82)***
Frequent stimulant use (cocaine/crack)	2.00 (1.43,2.82)***	3.05 (2.09, 4.45)***	2.77 (2.27, 3.37)***

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	Mild psychological distress aRRR (95% CI)	Moderate psychological distress aRRR (95% CI)	Severe psychological distress aRRR (95% CI)
Frequent binge drinker and stimulant use	2.99 (1.32, 6.75) **	2.59 (0.78, 8.63)	4.36 (1.32, 14.46) *

* p<.05

** <.10

*** p<.001