Effects of co-occurring stigmas on PTSD and depression among African American women living with HIV who use substances

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Abstract

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Introduction: Intersectional stigma has been shown to have negative impacts on behavior and health outcomes. Few research studies have incorporated both internalized HIV stigma and substance use stigma into a single analysis, and none looking at their relationship to mental health illnesses amongst African American women living with HIV and consume substances.

Methods: A cross-sectional analysis of baseline data taken from a HIV stigma reduction randomized control trial was used to examine the relationship between internalized HIV stigma, substance use stigma, and mental health illnesses (PTSD and Depression) amongst African American women living with HIV and who consume substances. We examined PTSD and depression symptoms amongst the population, and used multiple linear regression to analyze the relationship between both stigmas and mental health related illnesses.

Results: Fifty-four participants were enrolled in this study, ranging in age from 23 to 61 years. The mean year living with HIV was 14.3 (SD = 7.5). We found that 85.2% reported significant

levels of PTSD symptoms, while 44.4% reported moderate depression symptoms. Internalized stigma was associated with moderate depression symptoms (0.38; $p < 0.01$) and significant PTSD symptoms (0.46; $p<0.001$). Substance-use stigma showed a trend between moderate depression symptoms (0.23; $p=0.07$) and significant PTSD symptoms (0.23; $p=0.06$).

Discussion: Our findings demonstrates a relationship between intersectional stigmas and mental health illnesses. Further studies are needed to better understand the complex relationship between intersectional stigmas, HIV status, and mental health outcomes.

Introduction

African-American women have higher risk for acquiring HIV than the national average, and have worse health outcomes associated with HIV. Even though these women make up 13% of the population, 60% of new infections in women were amongst African American women in 2017[1]. Poverty, segregation, low educational obtainment, and incarceration, are all prevalent within the African American community as the result of longstanding systemic racism and structural violence[2]. African American women also live with sexism in the interpersonal, family, community, and institutional spheres[3–5], and have historically been left behind by feminist movements[6,7]. The stress associated with African American women's intersectional identities may be a determinant of relationships with substances[8–11].

Substance dependence is particularly concerning amongst women living with HIV (WLWH) due to the association between substance consumption and poor adherence to medication, particularly antiretroviral therapy (ART) [12–14]. Heavy drinking is also associated with increased risk of detectable viral load[12], impaired liver function[15], and increased mortality[12,16]. Comorbidities of mental health related illnesses and substance dependence are also associated with HIV among African American women[17–21], resulting in increased risky HIV behaviors[22], overall health outcomes[23,24], and lack of adherence to[25,26] and avoidance of care[27]. The estimated rate of PTSD amongst HIV-positive women is 30%, over five times the national prevalence rate[28].

Stigma, the relationship between an attribute and a stereotype resulting in some form of discrimination[29], may be a pathway to poor health outcomes. Substance use stigma is not well understood, though research has demonstrated stigma as a barrier to both diagnosis and treatment for individuals living with substance use disorder[30]. Research has focused heavily on HIV related stigma, which is associated with depression[31–34], PTSD[31], poor adherence to medication[35–37], and

risk of poor overall health[38]. In a meta-analysis, lack of social support, poor physical and mental health, and lower income were each associated with HIV stigma [38]. In terms of content of these stigmas, African American women are blamed for their ailments and seen as unpredictable and dangerous[40].

The concept of intersectional stigmas, defined by Janet Turan as the "convergence of multiple stigmatized identities within a person or group,"[41] may be a pathway to explain many of these outcomes. Working off of concepts written about by Soujourner Truth[42] and Kimberle Crenshaw[43], intersectional stigma addresses the social and structural-level forces by which multiple coinciding stigmas, including HIV status, race, gender, and other positions, actively impact individual level behavior and risk-factors. Lower rates HIV disclosure[44], poor adherence to medication[45], severe symptoms of depression[46–48], and lower access to health care[49,50] have all been shown to be correlated with intersectional stigmas and HIV. A previous study on the effects of racial, socio-economic, and social class between the white-black dichotomy demonstrated HIV-related discrimination was greater amongst those already facing racial and sexual discrimination, along with increased depression related to HIV status[51]. While there is some evidence the effects of intersectional stigmas may have multiplicative impacts on health outcomes[52–54], more research is needed to better understand the complex relationship between intersectional stigmas effects on mental health illnesses.

Although both substance use stigma and HIV-related stigmas have been associated with health outcomes in previous studies, we found only one study which examined both stigmas in one analysis. Earnshaw et al. found that greater depression symptoms were associated with higher levels internalized HIV stigma only amongst those who had higher levels of substance use stigma[55]. The present study expanded on Earnshaw et al.'s work by examining substance use-

related stigma, internalized HIV-related stigma, and their associations with depressive and PTSD symptoms amongst African American women living with HIV. We hypothesized that both internalized HIV stigma and substance use stigma have unique associations with depressive and PTSD symptoms in African American women who use substances.

Methods

Data were collected between May 2013 and December 2016 as part of the baseline assessment for the UNITY Study, a randomized control trial assessing the effectiveness of a stigma reduction intervention. The study examined the UNITY Workshop intervention in a sample of African American women living with HIV. The study took place in Chicago, Illinois and one site in Birmingham, Alabama.

Participants

Participants were recruited for this study at two HIV clinics in Chicago and one in Birmingham. Advertisements for the study were placed up within the three clinics. Research assistants screened for each participant to ensure they met the requirements for the study. Inclusion criteria included identification with African-American racial/ethnic background, 18 years of age or older, and documentation of living with HIV. Individuals were excluded from the study who were African born or of Afro-Caribbean descent for cultural calibration issues, as the intervention was developed for African American women. For the present study, we excluded participants who did not self-report alcohol or substance use at baseline measurements.

Measures

Baseline data was collected using the Audio Computer Assisted Self Interview system (ACASI), in which participants hear questions and response choice through headphones, lending

privacy in responding to the participant. A research coordinator assisted with administration of measures if participants had questions. We collected information on participant socio-demographics (age, education, years living with HIV, and number of children living in their homes), alcohol and other substance use, internalized HIV stigma, substance use stigma, depressive symptoms, and PTSD symptoms for use in the current analysis.

Alcohol Use. We used the 10-item version of the Alcohol Use Disorders Identification Test (AUDIT)[56], which is a screening tool measuring self-reported alcohol consumption. Questions include "How often do you have a drink of containing alcohol" and "How often during the last year have you found that you were not able to stop drinking once you had started?" AUDIT has demonstrated reliability across diverse populations[57–60]. The scale was summed, with scores ranging from 0 to 40. Higher scores indicate greater levels of alcohol use.

Other Substance Use. We used the Severity of Dependence Scale (SDS)[61–63] is a 5-item screening tool measuring self-reported perceptions of substance use. Questions include "Did you ever think that your use of (drug) was out of control?" and "How much do you worry about your use of the drug?" SDS has demonstrated reliability in testing for cocaine, heroin, marijuana, and amphetamines[64]. The scale was summed, with scores ranging from 0 to 15. Higher scores indicate greater levels of substance dependence.

We included participants in this analysis if they had either an AUDIT score above 8, indicating moderate risk of harmful drinking or a SDS score of above 3, indicating psychological dependence on amphetamines, the lowest scored drug validated.

Internalized HIV-related Stigma. HIV-related Stigma was captured with the internalized subscale of the Stigma Scale for Chronic Illness (SSCI)[65,66]. The SSCI is a 14-item Likert scale instrument measuring internalized and enacted stigma. SSCI has been validated for use with

African American individuals living with HIV. The participants were prompted to consider questions relating to living with HIV and asks questions such as "I felt embarrassed by my illness." We used the internalized HIV stigma subscale as a continuous variable for these analyses, and higher scores indicated greater internalized HIV stigma.

Substance Use-related Stigma. Substance use stigma was captured using the Substance Abuse Self-Stigma (SASS)[67], an 8-item Likert scale instrument. The instrument includes questions such as "I have the thought that a major reason for my problems with substances is my own poor character" and "I feel inferior to people who have never had a problem with substances." The scale had total scores that could range from 8-32. Higher values on the continuous scale indicate greater perceived stigma.

Depressive Symptoms. Depressive symptoms were captured using the Patient Health Questionnaire (PHQ-8)[68], an adapted and validated 8-item version of the PHQ-9 instrument often utilized in screening for depression[69]. A question about suicidality was omitted based on the recommendations of the Institutional Review Board. The instrument includes questions such as how many days have you had "Little interest or pleasure in doing things?" and "Feeling bad about yourself – or that you are a failure or have let yourself or your family down?" The scale had total scores that could range from 0 to 24, with higher scores indicating greater severity.

Post-Traumatic Stress Disorder (PTSD) Symptoms. PTSD symptoms were measured using the PTSD instrument associated with the DSM-IV criteria[70,71]. The 17-item Likert scale has been validated in primary care settings[72]. The instrument includes questions such as in the past month, how much were you bothered by "repeated, disturbing memories, thoughts, or images of a stressful experience from the past?" and "blaming yourself or someone else for a stressful experience or what happened after it?" The scale had scores that ranged from 0 to 85.

Data Analysis

All data were analyzed using RStudio version 1.1.423. We performed two multivariable linear regression analyses. For each, internalized HIV stigma and substance use stigma served as independent variables. Depressive symptoms served as the dependent variable in the first analysis and PTSD symptoms served as the dependent variable in the second.

Results

At baseline assessment, 239 African-American WLWH enrolled in the study. Of those, 29 women scored at or above moderate risk for harmful drinking on the AUDIT tool and 34 scored at or above psychological dependence level on the SDS tool, with 9 above cutoffs with both tools. 54 participants in all were considered to have significant self-reported levels of substance use and used in this analysis.

Participants ranged in age from 23 to 61 years of age, with a mean age of 47 years (Table 1). The average number of years since diagnosis was 14.3 years (*SD* = 7.5), with over 70% living with HIV longer than 8 years. 59% had not earned a high school diploma. The majority reported living in a residence either along, with dependents, and/or with other adults (90.7%), with few in an institution or retirement home (3.7%) or did not respond (11.1%). 46 (85.2%) of participant in this study reported significant levels of PTSD symptoms, with a mean PTSD symptom score of 45.5 (*SD* = 15.1). Moderate depression symptoms were reported amongst 24 (44.4%) participants, with a mean depressive symptom score was 10.2 (SD = 5.9). Only one participant reported moderate depression symptoms without significant PTSD symptoms. Seven women had neither significant PTSD nor depression symptoms. Figure 1 depicts the prevalence of notable levels PTSD and depressive symptoms in the sample.

Two separate multiple regression analyses were performed to determine the relationship between internalized HIV stigma and substance use stigma on depression and PTSD. The unadjusted, standardized means for variables are depicted in Figure 2. As hypothesized, both internalized HIV stigma and substance use stigma are positively associated with depression (SSCI: $\beta = 0.38$, $p < 0.01$; SASS: $\beta = 0.23$, $p=0.07$; Overall: $F(2,51)= 7.79$, $p < 0.01$). Internalized HIV stigma and substance use stigma also show a positive association with PTSD (SSCI: $\beta=0.46$, $p<0.001$, SASS: $\beta= 0.23$, $p=0.06$; Overall: $F(2,51) = 11.31$, $p < 0.001$).

Discussion

Our study found a modest association between internalized HIV stigma and both depression and PTSD, while substance use stigma showed a trend between depression and PTSD. Previous research supports the relationship found between internalized HIV stigma and mental health outcomes[38,46,73], including prior research on this study[74,78]. In the present study, however, we examined the association of both internalized HIV stigma and substance use stigma on depressive symptoms and then again in one analysis examining PTSD symptoms. Our results showed that internalized HIV stigma appears to have a stronger association with depression and PTSD symptoms than substance use stigma has with depression and PTSD symptoms. Our study was the first of its kind to examine the effects of these two stigmas together on depression and PTSD in the same analysis.

Alarmingly, the 85.2% prevalence rate of PTSD amongst African American women living with HIV and who consume substances is much higher than anticipated. Preceding research on the UNITY study found a prevalence of significant PTSD symptoms to be 67% within the sample population[74]. This is greater than what has been recorded in previous studies amongst African

American women living with HIV (36 - 55%)[75,76]. While the prevalence of significant PTSD symptoms within the larger sample population is greater than previous studies, the difference when taking substance use into account is significant. Though African-Americans are more likely to be diagnosed with PTSD[77], the incredibly high percentage of clinical-level PTSD symptoms among African-American women who use substances warrants further investigation.

We found a trend in the link between substance use stigma and depressive and PTSD symptoms. The association between substance-use stigma and mental health outcomes, while significantly less researched than HIV stigma, has had mixed results reflected in the literature[30]. While our study did examine substance use stigma separately from internalized HIV stigma, we did not measure stigmas associated with specific substances. Each substance may have different types and severities of stigma associated with them. People who inject drugs face greater stigma than those who consume alcohol, which may be more normalized in certain settings[79]. Mateu-Gelabert et al. found those who consume heroin and crack cocaine experience high levels of internalized substance use stigma towards those who inject drugs rather than consuming by other methods[80]. Through their qualitative interviews with people who consume heroin and crack cocaine, participants discuss hiding their method of consumption and how consumption methods affect views of "keeping it together." Even amongst those who consume substances through injection, many held strong negative views of others who inject drugs.

There are several important limitations to this study. The cross-sectional study design does not allow for demonstrating causality. Measures used within this study were self-reported, which, particularly within the field of stigma, carry the risk of social desirability bias. The small sample size limits the ability to assess covariates and interaction between multiple stigmas. We do not believe that this would greatly affect the relationship between internalized HIV stigma and

depression/PTSD given previous research[25,46], though we do believe it may affect our the lack of statistical power for assessing the effect of substance use stigma. As previously mentioned, our measure of substance use is limited towards our findings. The Severity Dependency Scale does not capture the preference of substances consumed or consistency of substance use. While AUDIT does capture consistency and frequency, the pairing may have an effect on our findings.

To our knowledge, this is the first study that has examined the mental health implications of both internalized HIV stigma and substance-use stigma among African American women living with HIV and consume substances. This research adds to the existing literature which stresses the importance of focusing on health within populations of intersectional identities. Given the effects of intersectional stigma, using substances, and mental health illness on health outcomes such as ART adherence, developing better understandings of risk and interventions for African American women living with HIV and consuming substances is of dire importance. As Brawner lays out in her theory of geobehavioral vulnerability to HIV, "Neither a biomedical nor behavioral approach to HIV prevention can be sustained in the absence of considering the broader contexts"[2]. It is important for future research to focus on the multiple levels of stigma that exist concurrently and interact together to develop the health inequities that exist amongst WLWH.

Table 1

Table 1	
Characteristics	
Total	54 (100)
Age	
18-35	9 (16.7)
36-45	14 (25.9)
46-55	21 (38.9)
56+	10 (18.5)
Education	
Less than HS	32 (59.3)
HS degree or equivalent	10 (18.5)
Some college/technical degree	9 (16.7)
College degree or above	3 (5.6)
Missing	3 (5.6)
	1 (1.9)
Number of Years Living with HIV	
0-8 years	14 (25.9)
9-16 years	19 (35.2)
17-24 years	15 (27.8)
25 years +	5 (9.2)

Living Arrangement	
Alone	15 (27.8)
With other adult(s), no dependents	18 (33.3)
With other adult(s) and dependents	7 (13.0)
With dependents only	8 (14.8)
In an institution or retirement home	2 (3.7)
Don't Know	1 (1.9)
Refuse to Answer	1 (1.9)
Missing	2 (3.7)
Internalized (mean; sd)	20.3 (7.6)
Substance Use Stigma (mean; sd)	18.7 (8.4)
Depression (mean; sd)	10.24 (5.9)
Depression (>10); n (%)	24 (44.4)
PTSD (mean; sd)	45.5 (15.1)
PTSD (>30); n (%)	46 (85.2)

Figure 1.

Prevalence of Notable PTSD and Depressive Symptoms in the Sample

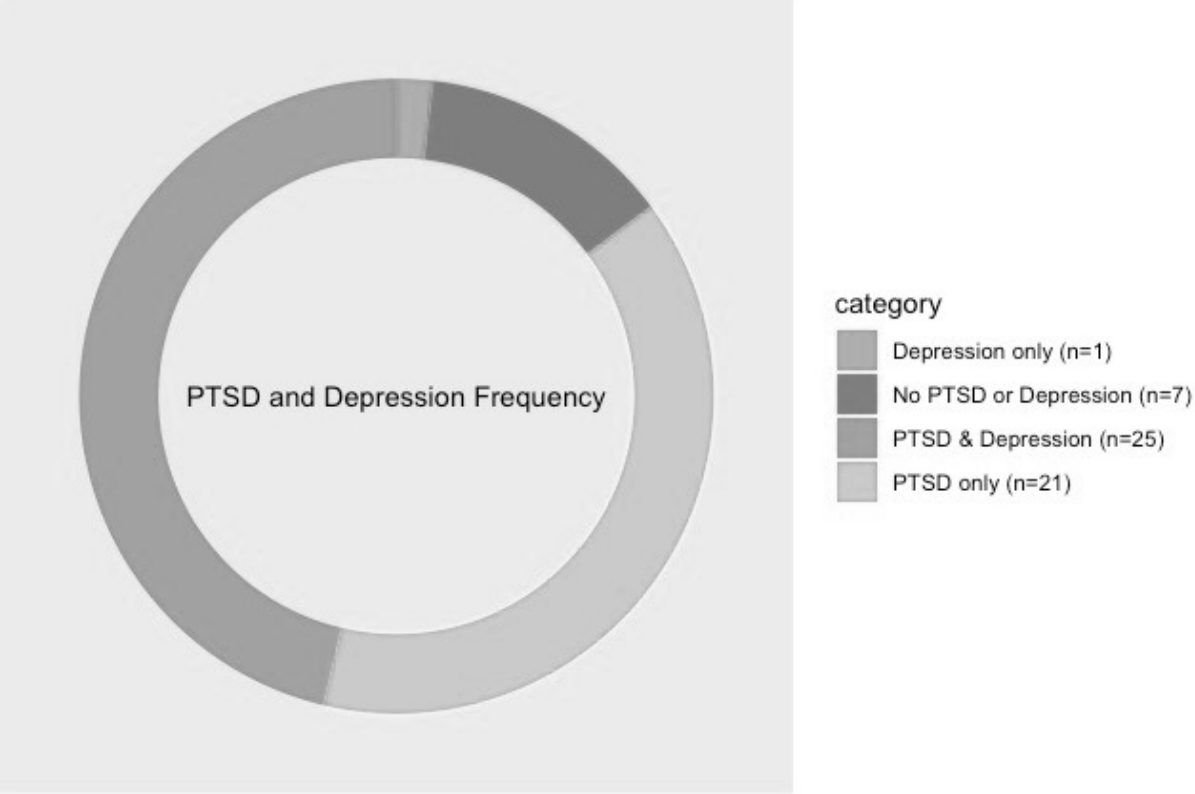
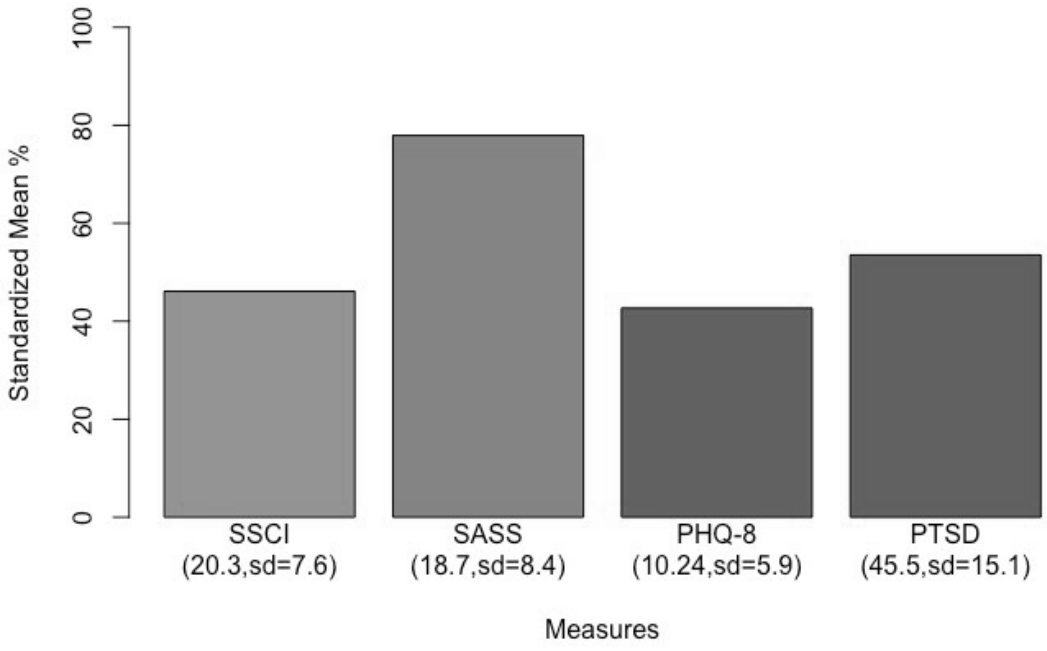


Figure 2.

Standardized Means for Substance Use Stigma (SASS), HIV-Related Stigma (SSCI), Depressive Symptoms (PHQ-8), and PTSD Symptoms



References

1. Bradley ELP, Williams AM, Green S, et al. Disparities in Incidence of Human Immunodeficiency Virus Infection Among Black and White Women — United States, 2010–2016. *MMWR Morb Mortal Wkly Rep*. 2019;68(18):416-418. doi:10.15585/mmwr.mm6818a3

2. Brawner BM. A Multilevel Understanding of HIV/AIDS Disease Burden Among African American Women. *J Obstet Gynecol Neonatal Nurs*. 2014;43(5):633-643. doi:10.1111/1552-6909.12481

3. Weiss NH, Dixon-Gordon KL, Peasant C, Jaquier V, Johnson C, Sullivan TP. A latent profile analysis of intimate partner victimization and aggression and examination of between-class differences in psychopathology symptoms and risky behaviors. *Psychol Trauma Theory Res Pract Policy*. 2017;9(3):370-378. doi:10.1037/tra0000202

4. Hauff NJ, Fry-McComish J, Chiodo LM. Cumulative trauma and partner conflict predict post-traumatic stress disorder in postpartum African-American women. *J Clin Nurs*. 2017;26(15-16):2372-2383. doi:10.1111/jocn.13421

5. Rao D, Andrasik MP, Lipira L. HIV Stigma Among Black Women in the United States: Intersectionality, Support, Resilience. *Am J Public Health*. 2018;108(4):446-448. doi:10.2105/AJPH.2018.304310

6. Davis AY. *Women, Race & Class*. New York: Vintage Books; 1983.

7. Hooks bell. *Ain't I a Woman.* Taylor and Francis; 2014. http://www.myilibrary.com?id=681912. Accessed May 19, 2019.

8. Conger, J. J. Reinforcement theory and the dynamics of alcoholism. *Q J Stud Alcohol*. 1956;(17):296-305.

9. Sinha R. How does stress increase risk of drug abuse and relapse? *Psychopharmacology (Berl)*. 2001;158(4):343-359. doi:10.1007/s002130100917

10. Sher KJ, Levenson RW. Risk for Alcoholism and Individual Differences in Stress-Response-Dampening Effect of Alcohol. :20.

11. Martin JK, Tuch SA, Roman PM. Problem Drinking Patterns among African Americans: The Impacts of Reports of Discrimination, Perceptions of Prejudice, and "Risky" Coping Strategies. *J Health Soc Behav*. 2003;44(3):408. doi:10.2307/1519787

12. Kahler CW, Liu T, Cioe PA, et al. Direct and Indirect Effects of Heavy Alcohol Use on Clinical Outcomes in a Longitudinal Study of HIV Patients on ART. *AIDS Behav*. 2017;21(7):1825-1835. doi:10.1007/s10461-016-1474-y

13. Hendershot CS, Stoner SA, Pantalone DW, Simoni JM. Alcohol Use and Antiretroviral Adherence: Review and Meta-Analysis: *JAIDS J Acquir Immune Defic Syndr*. 2009;52(2):180-202. doi:10.1097/QAI.0b013e3181b18b6e

14. Kahler CW, Wray TB, Pantalone DW, et al. Daily Associations Between Alcohol Use and Unprotected Anal Sex Among Heavy Drinking HIV-Positive Men Who Have Sex with Men. *AIDS Behav*. 2015;19(3):422-430. doi:10.1007/s10461-014-0896-7

15. Canan C, Lau B, McCaul M, Keruly J, Moore R, Chander G. Effect of alcohol consumption on all-cause and liver-related mortality among HIV-infected individuals. *HIV Med*. 2017;18(5):332-341. doi:10.1111/hiv.12433

16. Fairbairn NS, Walley AY, Cheng DM, et al. Mortality in HIV-Infected Alcohol and Drug Users in St. Petersburg, Russia. Yang Y, ed. *PLOS ONE*. 2016;11(11):e0166539. doi:10.1371/journal.pone.0166539

17. Robinson AC, Knowlton AR, Gielen AC, Gallo JJ. Substance use, mental illness, and familial conflict non-negotiation among HIV-positive African-Americans: latent class regression and a new syndemic framework. *J Behav Med*. 2016;39(1):1-12. doi:10.1007/s10865-015-9670-1

18. Hampton MC, Halkitis PN, Mattis JS. Coping, Drug Use, and Religiosity/Spirituality in Relation to HIV Serostatus among Gay and Bisexual Men. *AIDS Educ Prev*. 2010;22(5):417-429. doi:10.1521/aeap.2010.22.5.417

19. Lightfoot M, Rogers T, Goldstein R, et al. Predictors of substance use frequency and reductions in seriousness of use among persons living with HIV. *Drug Alcohol Depend*. 2005;77(2):129-138. doi:10.1016/j.drugalcdep.2004.07.009

20. Sullivan KA, Messer LC, Quinlivan EB. Substance Abuse, Violence, and HIV/AIDS (SAVA) Syndemic Effects on Viral Suppression Among HIV Positive Women of Color. *AIDS Patient Care STDs*. 2015;29(S1):S42-S48. doi:10.1089/apc.2014.0278

21. Tsuyuki K, Pitpitan EV, Levi-Minzi MA, et al. Substance Use Disorders, Violence, Mental Health, and HIV: Differentiating a Syndemic Factor by Gender and Sexuality. *AIDS Behav*. 2017;21(8):2270-2282. doi:10.1007/s10461-017-1841-3

22. Morrill AC, Kasten L, Urato M, Larson MJ. Abuse, addiction, and depression as pathways to sexual risk in women and men with a history of substance abuse. *J Subst Abuse*. 2001;13(1-2):169-184. doi:10.1016/S0899-3289(01)00065-7

23. 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. Stoove M, ed. *PLoS ONE*. 2014;9(11):e111528. doi:10.1371/journal.pone.0111528

24. Hartzell JD, Janke IE, Weintrob AC. Impact of depression on HIV outcomes in the HAART era. *J Antimicrob Chemother*. 2008;62(2):246-255. doi:10.1093/jac/dkn193

25. Gonzalez A, Locicero B, Mahaffey B, Fleming C, Harris J, Vujanovic AA. Internalized HIV Stigma and Mindfulness: Associations With PTSD Symptom Severity in Trauma-Exposed Adults With HIV/AIDS. *Behav Modif*. 2016;40(1-2):144-163. doi:10.1177/0145445515615354

26. Neigh GN, Rhodes ST, Valdez A, Jovanovic T. PTSD co-morbid with HIV: Separate but equal, or two parts of a whole? *Neurobiol Dis*. 2016;92:116-123. doi:10.1016/j.nbd.2015.11.012

27. Choi SKY, Boyle E, Cairney J, et al. Prevalence, Recurrence, and Incidence of Current Depressive Symptoms among People Living with HIV in Ontario, Canada: Results from the

Ontario HIV Treatment Network Cohort Study. Lima VD, ed. *PLOS ONE*. 2016;11(11):e0165816. doi:10.1371/journal.pone.0165816

28. Machtinger EL, Wilson TC, Haberer JE, Weiss DS. Psychological Trauma and PTSD in HIV-Positive Women: A Meta-Analysis. *AIDS Behav*. 2012;16(8):2091-2100. doi:10.1007/s10461-011-0127-4

29. Link BG, work(s): JCPR. Conceptualizing Stigma. *Annu Rev Sociol*. 2001;2:363-385.

30. Kulesza M, Watkins KE, Ober AJ, Osilla KC, Ewing B. Internalized stigma as an independent risk factor for substance use problems among primary care patients: Rationale and preliminary support. *Drug Alcohol Depend*. 2017;180:52-55. doi:10.1016/j.drugalcdep.2017.08.002

31. Katz S, Nevid JS. Risk Factors Associated with Posttraumatic Stress Disorder Symptomatology in HIV-Infected Women. *AIDS Patient Care STDs*. 2005;19(2):110-120. doi:10.1089/apc.2005.19.110

32. Wright K, Naar-King S, Lam P, Templin T, Frey M. Stigma Scale Revised: Reliability and Validity of a Brief Measure of Stigma for HIV+ Youth. *J Adolesc Health*. 2007;40(1):96-98. doi:10.1016/j.jadohealth.2006.08.001

33. Berger BE, Ferrans CE, Lashley FR. Measuring stigma in people with HIV: Psychometric assessment of the HIV stigma scale. *Res Nurs Health*. 2001;24(6):518-529. doi:10.1002/nur.10011

34. Levi-Minzi MA, Surratt HL. HIV Stigma Among Substance Abusing People Living with HIV/AIDS: Implications for HIV Treatment. *AIDS Patient Care STDs*. 2014;28(8):442-451. doi:10.1089/apc.2014.0076

35. Rao D, Kekwaletswe TC, Hosek S, Martinez J, Rodriguez F. Stigma and social barriers to medication adherence with urban youth living with HIV. *AIDS Care*. 2007;19(1):28-33. doi:10.1080/09540120600652303

36. Konkle-Parker DJ, Erlen JA, Dubbert PM. Barriers and Facilitators to Medication Adherence in a Southern Minority Population With HIV Disease. *J Assoc Nurses AIDS Care*. 2008;19(2):98-104. doi:10.1016/j.jana.2007.09.005

37. Ware NC, Wyatt MA, Tugenberg T. Social relationships, stigma and adherence to antiretroviral therapy for HIV/AIDS. *AIDS Care*. 2006;18(8):904-910. doi:10.1080/09540120500330554

38. Logie C, Gadalla TM. Meta-analysis of health and demographic correlates of stigma towards people living with HIV. *AIDS Care*. 2009;21(6):742-753. doi:10.1080/09540120802511877

39. Swendeman D, Rotheram-Borus MJ, Comulada S, Weiss R, Ramos ME. Predictors of HIV-related stigma among young people living with HIV. *Health Psychol*. 2006;25(4):501-509. doi:10.1037/0278-6133.25.4.501

40. Committee on the Science of Changing Behavioral Health Social Norms, Board on Behavioral, Cognitive, and Sensory Sciences, Division of Behavioral and Social Sciences and Education, National Academies of Sciences, Engineering, and Medicine. *Ending*

Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change. Washington, D.C.: National Academies Press; 2016. doi:10.17226/23442

41. Turan JM, Elafros MA, Logie CH, et al. Challenges and opportunities in examining and addressing intersectional stigma and health. *BMC Med*. 2019;17(1):7. doi:10.1186/s12916-018-1246-9

42. Aguilar DD. Tracing the Roots of Intersectionality. *MR Online*. April 2012. https://mronline.org/2012/04/12/aguilar120412-html/. Accessed May 19, 2019.

43. Crenshaw K. Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory, and Antiracist Politics [1989]. In: Bartlett KT, Kennedy R, eds. *Feminist Legal Theory*. 1st ed. Routledge; 2018:57-80. doi:10.4324/9780429500480-5

44. Fletcher F, Ingram LA, Kerr J, Buchberg M, Bogdan-Lovis L, Philpott-Jones S. "She Told Them, Oh That Bitch Got AIDS": Experiences of Multilevel HIV/AIDS-Related Stigma Among African American Women Living with HIV/AIDS in the South. *AIDS Patient Care STDs*. 2016;30(7):349-356. doi:10.1089/apc.2016.0026

45. Bogart LM, Wagner GJ, Galvan FH, Klein DJ. Longitudinal relationships between antiretroviral treatment adherence and discrimination due to HIV-serostatus, race, and sexual orientation among African-American men with HIV. *Ann Behav Med Publ Soc Behav Med*. 2010;40(2):184-190. doi:10.1007/s12160-010-9200-x

46. Logie C, James L, Tharao W, Loutfy M. Associations between HIV-related stigma, racial discrimination, gender discrimination, and depression among HIV-positive African,

Caribbean, and Black women in Ontario, Canada. *AIDS Patient Care STDs*. 2013;27(2):114-122. doi:10.1089/apc.2012.0296

47. Hayes-Larson E, Hirsch-Moverman Y, Saito S, et al. Depressive symptoms and hazardous/harmful alcohol use are prevalent and correlate with stigma among TB-HIV patients in Lesotho. *Int J Tuberc Lung Dis Off J Int Union Tuberc Lung Dis*. 2017;21(11):34-41. doi:10.5588/ijtld.17.0062

48. Logie CH, Newman PA, Chakrapani V, Shunmugam M. Adapting the minority stress model: associations between gender non-conformity stigma, HIV-related stigma and depression among men who have sex with men in South India. *Soc Sci Med 1982*. 2012;74(8):1261-1268. doi:10.1016/j.socscimed.2012.01.008

49. Lacombe-Duncan A. An Intersectional Perspective on Access to HIV-Related Healthcare for Transgender Women. - PubMed - NCBI. *Transgend Health*. 2016;1(1):137–41.

50. Sevelius JM, Patouhas E, Keatley JG, Johnson MO. Barriers and facilitators to engagement and retention in care among transgender women living with human immunodeficiency virus. *Ann Behav Med Publ Soc Behav Med*. 2014;47(1):5-16. doi:10.1007/s12160-013-9565-8

51. Williams DR, Yan Yu, Jackson JS, Anderson NB. Racial Differences in Physical and Mental Health: Socio-economic Status, Stress and Discrimination. *J Health Psychol*. 1997;2(3):335-351. doi:10.1177/135910539700200305

52. Bowleg L. When Black + Lesbian + Woman ≠ Black Lesbian Woman: The Methodological Challenges of Qualitative and Quantitative Intersectionality Research. *Sex Roles*. 2008;59(5-6):312-325. doi:10.1007/s11199-008-9400-z

53. Pachankis JE, Hatzenbuehler ML, Wang K, et al. The Burden of Stigma on Health and Well-Being: A Taxonomy of Concealment, Course, Disruptiveness, Aesthetics, Origin, and Peril Across 93 Stigmas. *Pers Soc Psychol Bull*. 2018;44(4):451-474. doi:10.1177/0146167217741313

54. Bauer GR. Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Soc Sci Med 1982*. 2014;110:10-17. doi:10.1016/j.socscimed.2014.03.022

55. Earnshaw VA, Smith LR, Cunningham CO, Copenhaver MM. Intersectionality of internalized HIV stigma and internalized substance use stigma: Implications for depressive symptoms. *J Health Psychol*. 2015;20(8):1083-1089. doi:10.1177/1359105313507964

56. Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. AUDIT: The Alcohol Use Disorders Identification Test - Guidelines for Use in Primary Care.

57. de Meneses-Gaya C, Zuardi AW, Loureiro SR, Crippa JAS. Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. *Psychol Neurosci*. 2009;2(1):83-97. doi:10.3922/j.psns.2009.1.12

58. Reinert DF, Allen JP. The Alcohol Use Disorders Identification Test: An Update of Research Findings. *Alcohol Clin Exp Res*. 2007;31(2):185-199. doi:10.1111/j.1530-0277.2006.00295.x

59. Rubin A, Migneault JP, Marks L, Goldstein E, Ludena K, Friedman RH. Automated Telephone Screening for Problem Drinking. *J Stud Alcohol*. 2006;67(3):454-457. doi:10.15288/jsa.2006.67.454

60. Bradley KA, Bush KR, Epler AJ, et al. Two Brief Alcohol-Screening Tests From the Alcohol Use Disorders Identification Test (AUDIT): Validation in a Female Veterans Affairs Patient Population. *Arch Intern Med*. 2003;163(7):821. doi:10.1001/archinte.163.7.821

61. Gossop M, Darke S, Griffiths P, et al. The Severity of Dependence Scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction*. 1995;90(5):607-614. doi:10.1046/j.1360-0443.1995.9056072.x

62. Martin G, Copeland J, Gates P, Gilmour S. The Severity of Dependence Scale (SDS) in an adolescent population of cannabis users: Reliability, validity and diagnostic cut-off. *Drug Alcohol Depend*. 2006;83(1):90-93. doi:10.1016/j.drugalcdep.2005.10.014

63. Kaye S, Darke S. Determining a diagnostic cut-off on the Severity of Dependence Scale (SDS) for cocaine dependence. *Addiction*. 2002;97(6):727-731. doi:10.1046/j.1360-0443.2002.00121.x

64. Gossop M, Best D, Marsden J, Strang J. Test-retest reliability of the Severity of Dependence Scale. *Addiction*. 1997;92(3):353-353. doi:10.1111/j.1360-0443.1997.tb03205.x

65. Rao D, Molina Y, Lambert N, Cohn SE. Assessing stigma among African Americans living with HIV. *Stigma Health*. 2016;1(3):146-155. doi:10.1037/sah0000027

66. Rao D, Choi SW, Victorson D, et al. Measuring Stigma Across Neurological Conditions: The Development of the Stigma Scale for Chronic Illness (SSCI). *Qual Life Res Int J Qual Life Asp Treat Care Rehabil*. 2009;18(5):585-595. doi:10.1007/s11136-009-9475-1

67. Luoma JB, Nobles RH, Drake CE, et al. Self-Stigma in Substance Abuse: Development of a New Measure. *J Psychopathol Behav Assess*. 2013;35(2):223-234. doi:10.1007/s10862-012-9323-4

68. Kroenke K, Strine TW, Spitzer RL, Williams JBW, Berry JT, Mokdad AH. The PHQ-8 as a measure of current depression in the general population. *J Affect Disord*. 2009;114(1-3):163-173. doi:10.1016/j.jad.2008.06.026

69. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9. *J Gen Intern Med*. 2001;16(9):606-613. doi:10.1046/j.1525-1497.2001.016009606.x

70. DSM-5. https://www.psychiatry.org/psychiatrists/practice/dsm. Accessed May 19, 2019.

71. Kessler RC, Ormel J, Petukhova M, et al. Development of lifetime comorbidity in the World Health Organization world mental health surveys. *Arch Gen Psychiatry*. 2011;68(1):90-100. doi:10.1001/archgenpsychiatry.2010.180

72. Lang AJ, Wilkins K, Roy-Byrne PP, et al. Abbreviated PTSD Checklist (PCL) as a guide to clinical response. *Gen Hosp Psychiatry*. 2012;34(4):332-338. doi:10.1016/j.genhosppsych.2012.02.003

73. Clark HJ, Lindner G, Armistead L, Austin B-J. Stigma, Disclosure, and Psychological Functioning Among HIV-Infected and Non-Infected African-American Women. *Women Health*. 2004;38(4):57-71. doi:10.1300/J013v38n04_04

74. Andu E, Wagenaar BH, Kemp CG, et al. Risk and protective factors of posttraumatic stress disorder among African American women living with HIV. *AIDS Care*. 2018;30(11):1393-1399. doi:10.1080/09540121.2018.1466981

75. Brownley JR, Fallot RD, Berley RW, Himelhoch SS. Trauma history in African-American women living with HIV: effects on psychiatric symptom severity and religious coping. *AIDS Care*. 2015;27(8):964-971. doi:10.1080/09540121.2015.1017441

76. Myers HF, Durvasula RS. Psychiatric disorders in African American men and women living with HIV/AIDS. *Cultur Divers Ethnic Minor Psychol*. 1999;5(3):249-262. doi:10.1037/1099-9809.5.3.249

77. Tolin DF, Foa EB. Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychol Bull*. 2006;132(6):959-992. doi:10.1037/0033-2909.132.6.959

78. Lipira L, Williams EC, Nevin PE, et al. Religiosity, Social Support, and Ethnic Identity: Exploring "Resilience Resources" for African-American Women Experiencing HIV-Related Stigma. *JAIDS J Acquir Immune Defic Syndr*. 2019;81(2):175-183. doi:10.1097/QAI.0000000000002006

79. Kulesza M, Matsuda M, Ramirez JJ, Werntz AJ, Teachman BA, Lindgren KP. Towards greater understanding of addiction stigma: Intersectionality with race/ethnicity and gender. *Drug Alcohol Depend*. 2016;169:85-91. doi:10.1016/j.drugalcdep.2016.10.020

80. Mateu-Gelabert P, Maslow C, Flom PL, Sandoval M, Bolyard M, Friedman SR. Keeping it together: Stigma, response, and perception of risk in relationships between drug injectors and

crack smokers, and other community residents. *AIDS Care*. 2005;17(7):802-813. doi:10.1080/09540120500100486

81. *Diagnostic and Statistical Manual of Mental Disorders, 4th Ed.* Arlington, VA, US: American Psychiatric Publishing, Inc.; 1994.