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Intersectional health-related stigma in persons living with HIV and chronic pain: implications for depressive symptoms

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Abstract

“Intersectional health-related stigma” (IHRS) refers to stigma that arises at the convergence of multiple health conditions. People living with HIV (PLWH) and chronic pain have two highly stigmatized health conditions, and thus may be at especially high risk for internalizing these stigmas and consequently experiencing depression. This study examined the intersectionality of internalized HIV and chronic pain stigma in relation to depressive symptoms in a sample of PLWH and chronic pain. Sixty participants were recruited from an HIV clinic in the Southeastern United States. Chronic pain was defined as pain that has been present for at least three consecutive months, and that has been an ongoing problem for at least half the days in the past six months. All participants completed the HIV Stigma Mechanisms Scale, Internalized Stigma in Chronic Pain Scale, the Short-Form Brief Pain Inventory, and the Center for Epidemiological Studies – Depression Scale. Clinical data was collected from medical records. An intersectional HIV and chronic pain composite variable was created and participants were categorized as either high (28%), moderate (32%), or low (40%). Results revealed that intersectional HIV and chronic pain stigma was significantly associated with severity of depressive symptoms ($p = .023$). Pairwise contrasts revealed that participants with high ($p = .009$) and moderate ($p = .033$) intersectional stigma reported significantly greater mean depressive symptom severity than those with low intersectional stigma. Participants who reported the highest levels of internalized HIV *and* chronic pain stigma also reported the greatest severity of depressive symptoms. This suggests that the experience of both HIV and chronic pain stigma (i.e., IHRS) among PLWH and chronic pain may

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synergistically perpetuate negative mood in a more profound manner than experiencing either one stigma alone.

Keywords

Intersectional stigma; HIV; chronic pain; depressive symptoms

Introduction

It is unfortunately still common for people living with HIV (PLWH) to experience stigma due to their HIV status, which often results in feelings of devaluation and invalidation (Earnshaw, Smith, Chaudoir, Amico, & Copenhaver, 2013). Experienced HIV stigma can become internalized if PLWH begin to endorse negative feelings and beliefs about their HIV status and apply them to the self (Earnshaw & Chaudoir, 2009). For example, PLWH who experience internalized stigma may feel that HIV makes them a bad person. PLWH who have internalized HIV stigma are more likely to be depressed and experience depressive symptoms (Earnshaw, Smith, Cunningham, & Copenhaver, 2015; Li, Lee, Thammawijaya, Jiraphongsa, & Rotheram-Borus, 2009; Rueda et al., 2016). In addition to internalizing stigma associated with HIV, PLWH may also internalize stigma associated with other health conditions that frequently affect PLWH such as chronic pain, epilepsy, cancer, and mental illness including substance use disorders (Scambler, 2009; Scambler, Heijnders, van Brakel, & Icaas, 2006; Weiss, Ramakrishna, & Somma, 2006). “Intersectional health-related stigma” (IHRS) refers to stigma that arises at the convergence of multiple health conditions.

HIV and chronic pain are both highly stigmatized health conditions, and thus individuals with both may be at especially high risk for IHRS. We focus on chronic pain as a comorbid HIV health condition in the current investigation partly because abundant evidence highlights the ubiquity of stigma in the lives of individuals with chronic pain (De Ruddere & Craig, 2016; Waugh, Byrne, & Nicholas, 2014). Qualitative evidence indicates that individuals with chronic pain often feel invalidated by significant others, friends, and family (Holloway, Sofaer-Bennett, & Walker, 2007; Monsivais, 2013). They believe practitioners think their pain is exaggerated or imagined (Werner & Malterud, 2003). They feel devalued, blamed, and even report being dismissed by healthcare providers (Slade, Molloy, & Keating, 2009; Toye & Barker, 2010, 2012). Chronic pain stigma can also become internalized, such that those with chronic pain report feeling inferior to others who do not have chronic pain (Waugh et al., 2014). Furthermore, chronic pain is among the most common health conditions afflicting PLWH in the modern treatment era (Parker, Stein, & Jelsma, 2014). Prevalence estimates of chronic pain in PLWH are reportedly as high as 39–85% across recent epidemiological studies, which is higher than in the general population (~20%) (Bruce et al., 2017). Despite its high prevalence and disabling consequences, studies around the world demonstrate that chronic pain in HIV populations is consistently understudied and undertreated (Ebirim & Otokwala, 2013; Robbins, Chaiklang, & Supparatpinyo, 2013). Furthermore, it has been shown repeatedly that untreated (or undertreated) chronic pain detracts from quality of life while promoting depression (Ataoglu et al., 2013; Elliott, Renier, & Palcher, 2003).

Although the health sciences have started to recognize the importance of stigma, only a few studies have examined the intersection of health-related stigmas (Calabrese et al., 2016; Earnshaw et al., 2015), and there have been no studies of IHRS in PLWH and chronic pain to date. When internalized, IHRS may yield profound negative impacts on health-promoting behaviors such as medication adherence (Rao, Kekwaletswe, Hosek, Martinez, & Rodriguez, 2007; Rintamaki, Davis, Skripkauskas, Bennett, & Wolf, 2006), as well as physical and mental health outcomes such as depression (Grov, Golub, Parsons, Brennan, & Karpiak, 2010; Simbayi et al., 2007). This study sought to specifically investigate the association of intersectional HIV and chronic pain stigma with depressive symptoms in a sample of PLWH and chronic pain. It was hypothesized that high levels of internalized IHRS (i.e., high internalized HIV *and* chronic pain stigma) would be associated with the greatest severity of depressive symptom in PLWH and chronic pain.

Participants and Procedures

A total of 60 PLWH with chronic pain were recruited from a large, urban HIV clinic in the Southeast U.S. that provides comprehensive medical, behavioral, and social services to adults with HIV. Chronic pain was defined as bodily pain that has persisted for at least three consecutive months and that was present on at least half the days in the past six months (Treede et al., 2015). Those interested in study participation completed a telephone screening to determine initial eligibility. Potential participants were excluded if their self-reported health history was positive for other conditions that could potentially be related to depressed mood. These conditions included: evidence of uncontrolled hypertension (i.e., resting blood pressure > 150/95), history of cardiac events/disease, history of stroke or seizure, and history of cancer. Sociodemographic information was collected from all participants and included age, gender (man, women, transgender), and racial background (non-Hispanic Black, non-Hispanic White), as well as poverty status. Annual household income adjusted for number of occupants was used to determine poverty status according to 2016 guidelines put forth by the U.S. Department of Health and Human Services ("2016 HHS Poverty Guidelines," 2016). All study procedures were approved by the local Institutional Review Board and carried out in accordance with guidelines for the ethical conduct of research.

Medical Record Review

Medical record review was completed to ascertain the rates of psychiatric diagnoses among participants, as well as determine whether participants were actively being prescribed medications that could affect their mood, such as antidepressants or analgesics. Medical records were also used to obtain most recent CD4+ T-cell count, a measure of immune status, and most recent viral load value. Those PLWH with > 200 copies of virus/mL were considered to have a detectable viral load; all others were considered virologically suppressed (i.e., without detectable viral loads). Lastly, medical record review was used to confirm participants' self-reported health history provided during telephone screening. Those PLWH whose medical records corroborated their self-reported health history, and who met study inclusion criteria, were deemed eligible for ongoing participation. Eligible participants were subsequently scheduled for a single study session at the Biobehavioral Pain Research Laboratory (PI: Goodin) to complete the measures listed below. Written

informed consent was obtained from each participant at the beginning of the study session and they were compensated for their involvement.

Measures

HIV-Related Stigma: Participants completed the HIV Stigma Mechanisms Measure (Earnshaw & Chaudoir, 2009), which was developed using the HIV Stigma Framework. This 24-item measure assesses three domains of perceived HIV-related stigma: internalized stigma, enacted stigma, and anticipated stigma. Previous work by those who developed this measure has shown that internalized stigma is strongly related to indicators of affective and behavioral health and well-being, while enacted and anticipated stigma are more closely related to indicators of physical health and well-being (Earnshaw et al., 2013). Items are measured on a 5-point Likert-type scale (1 - strongly disagree to 5 -strongly agree) and responses within each of the three stigma domains are summed. Higher scores within each domain are indicative of greater perceived HIV-related stigma. The current study focused exclusively on the domain of internalized HIV stigma, and this domain demonstrated excellent internal consistency (Cronbach's $\alpha = .93$).

Chronic Pain-Related Stigma: Participants self-reported their perceptions of chronic pain-related stigma using the Internalized Stigma of Chronic Pain scale (Vaughn et al., 2014). This measure includes 21 items that assess four sub-scale domains pertaining to chronic pain stigma: alienation, discrimination experience, social withdrawal, and stigma resistance (reverse coded prior to inclusion in the total score). Items are measured on a 4-point Likert-type scale (1 - strongly disagree to 4 - strongly agree) and the internalized chronic pain stigma total score is calculated by taking the average of the four subscale domains (range 1 – 4). Higher scores represent greater internalized chronic pain stigma. The Internalized Stigma of Chronic Pain scale used in this study had good internal consistency (Cronbach's $\alpha = .86$).

Pain Severity and Interference: The Brief Pain Inventory (BPI)-Short Form is an 11-item multidimensional pain scale with demonstrated reliability in patients with neuropathic and musculoskeletal chronic pain conditions (Tan, Jensen, Thornby, & Shanti, 2004; Zelman, Gore, Dukes, Tai, & Brandenburg, 2005). The BPI rates the severity of pain as well as the interference of pain. Pain severity is the average of 4 items asking about worst, least, and average pain in the past week, and current pain. These items are scored from 0 (no pain) to 10 (worst imaginable pain). Pain interference is the average of 7 items (0 to 10 scale where 10 reflects “completely interferes”) assessing the degree to which pain interferes with mood, physical activity, work/chores, social activity, relations with others, sleep, enjoyment of life. Higher scores suggest greater pain severity and interference, respectively. In this study we focused specifically on pain interference rather than pain severity. This is because previous work has indicated that pain interference, more than pain severity, may be the more robust contributor to depressed mood (Cannella, Lobel, Glass, Lokshina, & Graham, 2007). The pain interference portion of the BPI used in this study demonstrated excellent internal consistency (Cronbach's $\alpha = .92$).

Depression: Depressive symptoms were assessed using the Center for Epidemiological Studies-Depression Scale (CES-D). This 20-item measure assesses the frequency of

experiencing depressive symptoms over the past week (0 – never or rarely, to 3 – most of the time/all the time). Symptoms of depression measured by the CES-D include negative mood, guilt/worthlessness, helplessness/hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance (Radloff, 1977). This measure has been shown to be reliable and valid in general populations, including when used in HIV and chronic pain populations (Geisser, Roth, & Robinson, 1997; Natamba et al., 2014). Responses are summed (range 0 – 60), with higher scores indicating greater severity of depression. The CES-D measure used in the current study had good internal consistency (Cronbach's $\alpha = .88$).

Data Reduction and Analysis

Complete data was collected from all study participants for sociodemographic information and health-related variables extracted from medical records. A small portion of missing data existed for some of the measures (< 5%). There was no discernable pattern to the missing data, which was subsequently deemed to be missing at random. Therefore, a simple data imputation method was completed using the macro for Hot Deck imputation (Myers, 2011). This data imputation method is well validated, readily accepted in the statistical community, and resulted in complete data for all of the study participants.

Descriptive statistics were computed to convey the characteristics of the sample. A correlation matrix was generated to illustrate zero-order associations among continuously measured variables. Group differences were examined using independent samples t-tests. A composite variable representing IHRS was created by completing a median split for both the internalized HIV stigma (median = 12.0) and chronic pain stigma (median = 2.1) scales. PLWH and chronic pain who were above the median for both types of stigma were labeled as “high” IHRS whereas those who were below the median for both stigma types were labeled as “low”. Those who were above the median on one type of stigma but below the median on the other were labeled as “moderate”. Finally, an analysis of covariance (ANCOVA) was conducted to examine the independent contribution of the IHRS composite variable to depressive symptoms while controlling for appropriate covariates. Post-hoc contrasts to examine differences in depressive symptoms among the high, moderate, and low IHRS groups were completed as necessary.

Results

Participant characteristics

Descriptive characteristics for the 60 study participants are presented in Table 1. Based upon the composite IHRS variable created using the internalized HIV and chronic pain stigma scales, 28% of participants were categorized as high, 32% as moderate, and 40% as low intersectional stigma. The median age was 47.8 years (SD = 8.7). The sample was comprised of 54% men, 39% women, and 7% transgender women, while 92% were non-Hispanic Black and the remaining 8% were non-Hispanic White. The mean most recent CD4+ count was 663.5 (SD = 335.1), 8% had a detectable viral load (>200 copies/mL), and 98% were prescribed antiretroviral therapy. The most frequently reported location of chronic pain was low back (44%), hips/knees (30%), neck (9%), widespread (3+ sites) (9%), shoulder/arm/hand (4%), and feet (4%). Sixty-one percent of the sample was prescribed

analgesic medication for pain, and the most common prescription was non-steroidal anti-inflammatory drugs (33%). Seventy-five percent of the sample had a psychiatric diagnosis listed in their medical record, with the most common diagnosis being depression (36%). Approximately 46% of participants were actively prescribed an anti-depressant medication, with the most common prescriptions being selective serotonin reuptake inhibitors (SSRIs) and serotonin and norepinephrine reuptake inhibitors (SNRIs) (38%).

Correlations, group differences, and selection of covariates

Greater severity of depressive symptoms reported on the CES-D was significantly correlated with younger age ($r = -.33$, $p = .011$) and greater pain interference ($r = .47$, $p < .001$). Transgender women reported greater depressive symptoms than other women ($t = 2.13$, $p = .037$), while non-Hispanic Whites reported greater depressive symptom severity than non-Hispanic Blacks ($t = -2.44$, $p = .018$). Participants who were actively prescribed an analgesic medication reported significantly less severe depressive symptoms than those who were not prescribed an analgesic ($t = 2.81$, $p = .007$). Depressive symptom severity was not significantly associated with most recent CD4+ T-cell count ($r = .03$, $p = .819$), detectable viral load ($t = -.71$, $p = .482$), duration of HIV diagnosis ($r = .11$, $p = .423$), any psychiatric diagnosis ($t = 1.63$, $p = .109$), having an anti-depressant prescription ($t = .06$, $p = .954$), or poverty ($t = .31$, $p = .767$). Given significant associations with depressive symptom severity, participants' age, race (coded as 1 = non-Hispanic Black, 2 = non-Hispanic White), gender (dummy coded as gender¹; 1 = women, 2 = men, and gender²; 1 = women, 2 = transgender women), analgesic use (coded as 1 = not prescribed, 2 = actively prescribed), and pain interference were included as covariates in the ANCOVA presented below.

Intersectional stigma and depressive symptoms

Results of the ANCOVA revealed that intersectional HIV and chronic pain stigma was significantly associated with severity of depressive symptoms ($F_{2,51} = 4.07$, $p = .023$; see Table 2). Pairwise contrasts revealed that PLWH with chronic pain who experienced high ($p = .009$) and moderate ($p = .033$) levels of internalized intersectional stigma reported significantly greater mean depressive symptoms than those with low intersectional stigma (Figure 1). Although the mean depressive symptoms of PLWH and chronic pain with high intersectional stigma was greater than that of PLWH and chronic pain with moderate intersectional stigma, this difference did not reach significance ($p = .473$). The effect size for the association of intersectional HIV and chronic pain stigma with depressive symptoms was .14 (large according to Cohen's guidelines), and the observed power with 60 participants was .70.

Discussion

Participants who reported the highest levels of internalized HIV and chronic pain stigma also reported the greatest severity of depressive symptoms. This suggests that the internalization of both HIV and chronic pain stigmas (i.e., intersectional stigma) among PLWH and chronic pain may synergistically perpetuate negative mood in a more profound manner than either one stigma alone. This is important because depression is a known risk factor for poor HIV (Hartzell, Janke, & Weintrob, 2008) and chronic pain outcomes (Bair, Robinson, Katon, &

Kroenke, 2003). Taken together, internalized HIV and chronic stigma in individuals afflicted with these health conditions likely perpetuates depression. In turn, worsening severity of depressive symptoms can impede appropriate HIV and chronic pain management. This chain of events could ultimately culminate in poor quality of life, additional comorbidity, and hastened mortality; however, additional research is needed to test this possibility.

IHRS was common in this sample of PLWH and chronic pain, with 28% of participants reporting high levels of both internalized HIV and chronic pain stigma. Furthermore, the severity of depressive symptoms reported by participants was clinically significant given that the overall mean CES-D score across the entire sample was 24.8. Researchers have previously used scores on the CES-D between 22 and 24 as validated sensitive cut-points to indicate high likelihood of current major depressive disorder (Lewinsohn, Seeley, Roberts, & Allen, 1997; Lyness et al., 1997). Of note, participants with high IHRS reported mean depressive symptoms severity of 31.9. This finding suggests that many of the PLWH and chronic pain with high internalized IHRS would likely meet criteria for a current major depressive disorder. Similarly, participants with moderate IHRS reported mean depressive symptom severity of 27.1, indicating that this group may also be experiencing a high rate of current major depressive disorder.

Future interventions targeting internalized IHRS may play an important role in addressing depressive symptoms in populations of PLWH and chronic pain. Healthcare providers should specifically consider stigma associated with both HIV and other health-related conditions like chronic pain among PLWH when intervening to reduce depressive symptoms. Anti-stigma education, completed online or in group-based formats, can be effective for mitigating stigmatizing behaviors and patient interactions that healthcare providers may not even know they are perpetrating (Gronholm, Henderson, Deb, & Thornicroft, 2017). For patients, strengths-based cognitive behavioral therapies represent a promising armamentarium of psychological interventions designed to not only ameliorate distress but also promote happiness, resilience, courage and other positive qualities (Padesky & Mooney, 2012). The recent article published by Padesky and Mooney (2012) presents a comprehensive overview of strengths-based cognitive behavioral therapy that includes a four-step model for building resilience. Future research is necessary to determine whether this type of therapy can be adapted to PLWH in an effort to reduce internalized IHRS related to HIV and chronic pain.

This study has several limitations that should be considered when interpreting the results, and that future research may expand upon. First, there is currently little consensus in the field in terms of how to measure intersectional stigma (qualitative, quantitative, and mixed methods approaches have been suggested) and how to analyze data on intersectionality. We are confident in our quantification of internalized HIV and chronic pain stigma given the use of common and well validated measures in this study. However, the technique incorporated for creating the intersectional stigma composite variable is not beyond reproach. Median splits were used to artificially categorize PLWH and chronic pain as either high, moderate, or low IHRS, and it is possible that some participants may have been inaccurately categorized. Second, the sample size incorporated in this study was small. Although 28% of the sample reported high IHRS, this only equated to 17 of 60 participants. Future work

should test whether our findings can be replicated among larger, more diverse populations of PLWH and chronic pain to determine the generalizability of these effects. Third, the cross-sectional design of this study precludes our ability to form conclusions about whether internalized IHRS indeed predicts the development of depression, and/or the subsequent severity of depressive symptoms once depression has manifest. Alternatively, it is possible that participants with greater depressive symptoms in this study were more likely to perceive HIV and chronic pain stigma from others and internalize it. It would be useful for future longitudinal research to address whether internalized IHRS at baseline predicts the subsequent onset of depression over time in PLWH and chronic pain. Lastly, Intersectional stigma can be experienced when a person has more than one stigmatized identity; including stigmas related to various racial, ethnic, gender, or body characteristics, as well as a stigmas related to health conditions. Sexism, racism, classism, and homophobia often adversely affect people living with HIV and other stigmatized health conditions (C. Logie, James, Tharao, & Loutfy, 2013; C. H. Logie, James, Tharao, & Loutfy, 2011). The current study focused exclusively on health-related stigma pertaining to HIV and chronic pain. However, it is possible that other types of stigma could have also negatively impacted depressive symptoms given that our study sample was comprised mostly of impoverished, non-Hispanic Blacks, and included transgender women as well as a noteworthy proportion of individuals with a documented psychiatric illness. Additional research is needed to better understand how multiple stigmas (beyond just two) intersect to affect depression and overall mental health. Despite these limitations, results of this study contribute to a stronger understanding of the potential impact of internalized IHRS on depressive symptoms in PLWH and chronic pain.

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References

- 2016 HHS Poverty Guidelines. (2016). [Press release]. Retrieved from Available from: <https://aspe.hhs.gov/poverty-guidelines>
- Ataoglu E , Tiftik T , Kara M , Tunc H , Ersoz M , & Akkus S (2013). Effects of chronic pain on quality of life and depression in patients with spinal cord injury. *Spinal Cord*, 51(1), 23–26. doi: 10.1038/sc.2012.5122547044
- Bair MJ , Robinson RL , Katon W , & Kroenke K (2003). Depression and pain comorbidity: a literature review. *Arch Intern Med*, 163(20), 2433–2445. doi:10.1001/archinte.163.20.243314609780
- Bruce RD , Merlin J , Lum PJ , Ahmed E , Alexander C , Corbett AH , . . . Selwyn P . (2017). 2017 HIV Medicine Association of Infectious Diseases Society of America Clinical Practice Guideline for the Management of Chronic Pain in Patients Living With Human Immunodeficiency Virus. *Clin Infect Dis*, 65(10), 1601–1606. doi:10.1093/cid/cix84829091230
- Calabrese SK , Burke SE , Dovidio JF , Levina OS , Uuskula A , Niccolai LM , & Heimer R (2016). Internalized HIV and Drug Stigmas: Interacting Forces Threatening Health Status and Health

- Service Utilization Among People with HIV Who Inject Drugs in St. Petersburg, Russia. *AIDS Behav*, 20(1), 85–97. doi:10.1007/s10461-015-1100-426050155
- Cannella DT , Lobel M , Glass P , Lokshina I , & Graham JE (2007). Factors associated with depressed mood in chronic pain patients: the role of intrapersonal coping resources. *J Pain*, 8(3), 256–262. doi:10.1016/j.jpain.2006.08.00717174608
- De Ruddere L , & Craig KD (2016). Understanding stigma and chronic pain: a-state-of-the-art review. *Pain*, 157(8), 1607–1610. doi:10.1097/j.pain.000000000000051226859821
- Earnshaw VA , & Chaudoir SR (2009). From conceptualizing to measuring HIV stigma: a review of HIV stigma mechanism measures. *AIDS Behav*, 13(6), 1160–1177. doi:10.1007/s10461-009-9593-319636699
- Earnshaw VA , Smith LR , Chaudoir SR , Amico KR , & Copenhaver MM (2013). HIV stigma mechanisms and well-being among PLWH: a test of the HIV stigma framework. *AIDS Behav*, 17(5), 1785–1795. doi:10.1007/s10461-013-0437-923456594
- Earnshaw VA , Smith LR , Cunningham CO , & Copenhaver MM (2015). Intersectionality of internalized HIV stigma and internalized substance use stigma: Implications for depressive symptoms. *J Health Psychol*, 20(8), 1083–1089. doi:10.1177/135910531350796424170015
- Ebirim LN , & Otokwala JG (2013). Inadequate pain relief in ambulatory patients with human immunodeficiency virus disease in Port Harcourt. *HIV AIDS (Auckl)*, 5, 199–203. doi:10.2147/HIV.S4515023976866
- Elliott TE , Renier CM , & Palcher JA (2003). Chronic pain, depression, and quality of life: correlations and predictive value of the SF-36. *Pain Med*, 4(4), 331–339.14750909
- Geisser ME , Roth RS , & Robinson ME (1997). Assessing depression among persons with chronic pain using the Center for Epidemiological Studies-Depression Scale and the Beck Depression Inventory: a comparative analysis. *Clin J Pain*, 13(2), 163–170.9186024
- Gronholm PC , Henderson C , Deb T , & Thornicroft G (2017). Interventions to reduce discrimination and stigma: the state of the art. *Soc Psychiatry Psychiatr Epidemiol*, 52(3), 249–258.28144713
- Grov C , Golub SA , Parsons JT , Brennan M , & Karpiak SE (2010). Loneliness and HIV-related stigma explain depression among older HIV-positive adults. *AIDS Care*, 22(5), 630–639. doi:10.1080/0954012090328090120401765
- Hartzell JD , Janke IE , & Weintrob AC (2008). Impact of depression on HIV outcomes in the HAART era. *J Antimicrob Chemother*, 62(2), 246–255. doi:10.1093/jac/dkn19318456650
- Holloway I , Sofaer-Bennett B , & Walker J (2007). The stigmatisation of people with chronic back pain. *Disabil Rehabil*, 29(18), 1456–1464. doi:10.1080/0963828060110726017729093
- Lewinsohn PM , Seeley JR , Roberts RE , & Allen NB (1997). Center for Epidemiologic Studies Depression Scale (CES-D) as a screening instrument for depression among community-residing older adults. *Psychol Aging*, 12(2), 277–287.9189988
- Li L , Lee SJ , Thammawijaya P , Jiraphongsa C , & Rotheram-Borus MJ (2009). Stigma, social support, and depression among people living with HIV in Thailand. *AIDS Care*, 21(8), 1007–1013. doi:10.1080/0954012080261435820024757
- Logie C , James L , Tharao W , & Loutfy M (2013). 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*, 27(2), 114–122. doi:10.1089/apc.2012.029623373665
- Logie CH , James L , Tharao W , & Loutfy MR (2011). HIV, gender, race, sexual orientation, and sex work: a qualitative study of intersectional stigma experienced by HIV-positive women in Ontario, Canada. *PLoS Med*, 8(11), e1001124. doi:10.1371/journal.pmed.100112422131907
- Lyness JM , Noel TK , Cox C , King DA , Conwell Y , & Caine ED (1997). Screening for depression in elderly primary care patients. A comparison of the Center for Epidemiologic Studies-Depression Scale and the Geriatric Depression Scale. *Arch Intern Med*, 157(4), 449–454.9046897
- Monsivais DB (2013). Decreasing the stigma burden of chronic pain. *J Am Assoc Nurse Pract*, 25(10), 551–556. doi:10.1111/1745-7599.1201024170487
- Myers TA (2011). Goodbye, listwise deletion: presenting hot deck imputation as an easy and effective tool for handling missing data. *Communication Methods and Measures*, 5(4), 297–310.

- Natamba BK , Achan J , Arbach A , Oyok TO , Ghosh S , Mehta S , . . . Young SL . (2014). Reliability and validity of the center for epidemiologic studies-depression scale in screening for depression among HIV-infected and -uninfected pregnant women attending antenatal services in northern Uganda: a cross-sectional study. *BMC Psychiatry*, 14, 303. doi:10.1186/s12888-014-0303-y25416286
- Padesky CA , & Mooney KA (2012). Strengths-based cognitive-behavioural therapy: a four-step model to build resilience. *Clin Psychol Psychother*, 19(4), 283–290. doi:10.1002/cpp.179522653834
- Parker R , Stein DJ , & Jelsma J (2014). Pain in people living with HIV/AIDS: a systematic review. *J Int AIDS Soc*, 17, 18719. doi:10.7448/IAS.17.1.1871924560338
- Radloff LS (1977). A self-report depression scale for research in the general population. *Applied Psychological measurement*, 1(3), 385–401.
- Rao D , Kekwaletswe TC , Hosek S , Martinez J , & Rodriguez F (2007). Stigma and social barriers to medication adherence with urban youth living with HIV. *AIDS Care*, 19(1), 28–33. doi: 10.1080/0954012060065230317129855
- Rintamaki LS , Davis TC , Skripkauskas S , Bennett CL , & Wolf MS (2006). Social stigma concerns and HIV medication adherence. *AIDS Patient Care STDS*, 20(5), 359–368. doi:10.1089/apc.2006.20.35916706710
- Robbins NM , Chaiklang K , & Supparatpinyo K (2013). Undertreatment of pain in HIV+ adults in Thailand. *J Pain Symptom Manage*, 45(6), 1061–1072. doi:10.1016/j.jpainsymman.2012.06.01023026546
- Rueda S , Mitra S , Chen S , Gogolishvili D , Globerman J , Chambers L , . . . Rourke SB . (2016). Examining the associations between HIV-related stigma and health outcomes in people living with HIV/AIDS: a series of meta-analyses. *BMJ Open*, 6(7), e011453. doi:10.1136/bmjopen-2016-011453
- Scambler G (2009). Health-related stigma. *Sociol Health Illn*, 31(3), 441–455. doi:10.1111/j.1467-9566.2009.01161.x19366430
- Scambler G , Heijnders M , van Brakel WH , & Icaas . (2006). Understanding and tackling health-related stigma. *Psychol Health Med*, 11(3), 269–270. doi:10.1080/1354850060059490817130063
- Simbayi LC , Kalichman S , Strebel A , Cloete A , Henda N , & Mqeketo A (2007). Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa. *Soc Sci Med*, 64(9), 1823–1831. doi:10.1016/j.socscimed.2007.01.00617337318
- Slade SC , Molloy E , & Keating JL (2009). Stigma experienced by people with nonspecific chronic low back pain: a qualitative study. *Pain Med*, 10(1), 143–154. doi:10.1111/j.1526-4637.2008.00540.x19222775
- Tan G , Jensen MP , Thornby JI , & Shanti BF (2004). Validation of the Brief Pain Inventory for chronic nonmalignant pain. *J Pain*, 5(2), 133–137. doi:10.1016/j.jpain.2003.12.00515042521
- Toye F , & Barker K (2010). ‘Could I be imagining this?’ - the dialectic struggles of people with persistent unexplained back pain. *Disabil Rehabil*, 32(21), 1722–1732. doi: 10.3109/0963828100365785720170277
- Toye F , & Barker K (2012). Persistent non-specific low back pain and patients’ experience of general practice: a qualitative study. *Prim Health Care Res Dev*, 13(1), 72–84. doi:10.1017/S146342361100038721896231
- Treede RD , Rief W , Barke A , Aziz Q , Bennett MI , Benoliel R , . . . Wang SJ . (2015). A classification of chronic pain for ICD-11. *Pain*, 156(6), 1003–1007. doi:10.1097/j.pain.00000000000016025844555
- Waugh OC , Byrne DG , & Nicholas MK (2014). Internalized stigma in people living with chronic pain. *J Pain*, 15(5), 550 e551–510. doi:10.1016/j.jpain.2014.02.00124548852
- Weiss MG , Ramakrishna J , & Somma D (2006). Health-related stigma: rethinking concepts and interventions. *Psychol Health Med*, 11(3), 277–287. doi:10.1080/1354850060059505317130065
- Werner A , & Malterud K (2003). It is hard work behaving as a credible patient: encounters between women with chronic pain and their doctors. *Soc Sci Med*, 57(8), 1409–1419.12927471

Zelman DC , Gore M , Dukes E , Tai KS , & Brandenburg N (2005). Validation of a modified version of the brief pain inventory for painful diabetic peripheral neuropathy. *J Pain Symptom Manage*, 29(4), 401–410. doi:10.1016/j.jpainsymman.2004.06.01815857744

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Figure 1:

Differences in depressive symptom severity according to category of intersectional HIV and chronic pain stigma. * = $p < .05$, ** = $p < .01$; M = mean, SD = standard deviation.

Table 1:**Participant Characteristics**

Variable	Mean (SD) or %
Age - years	47.8 (8.7)
Gender	
Men	54%
Women	39%
Transgender Women	7%
Race	
non-Hispanic Black	92%
non-Hispanic White	8%
Poverty	
Below Poverty Line	90%
Above Poverty Line	10%
Most Recent CD4+	663.5 (335.1)
Viral load (>200 copies/mL)	
Undetectable	92%
Detectable	8%
Duration of HIV Diagnosis - Years	13.2 (8.4)
Anti-Retroviral Therapy (ART)	
Not Prescribed	2%
Actively Prescribed	98%
Psychiatric Diagnosis	
No	25%
Yes	75%
Anti-Depressant	
Not Prescribed	54%
Actively Prescribed	46%
BPI - Pain Severity	6.1 (2.1)
BPI - Pain Interference	5.5 (2.4)
Analgesic	
Not Prescribed	39%
Actively Prescribed	61%
CES-D - Depressive Symptoms	24.8 (11.4)

Note: BPI = Brief Pain Inventory; CES-D = Center for Epidemiological Studies Depression Scale

Table 2:

ANCOVA predicting depressive symptom severity on the CES-D

Variable	SS	df	MS	F	P value
Age	172.78	1	172.78	2.46	.123
Gender ¹	427.54	1	427.54	6.10	.017
Gender ²	221.40	1	221.40	3.16	.082
Race	98.84	1	98.84	1.41	.241
Analgesic	299.05	1	299.05	4.27	.044
BPI – Pain Interference	336.79	1	336.79	4.80	.033
Intersectional HIV and Chronic Pain Stigma	570.42	2	285.21	4.07	.023

¹ = First dummy-coded gender variable (1 = women, 2 = men)

² = Second dummy-coded gender variable (1 = women, 2 = transgender women); Race coded 1 = non-Hispanic Black, 2 = non-Hispanic White; Analgesic coded 1 = not prescribed, 2 = actively prescribed; CES-D = Center for Epidemiological Studies Depression Scale; BPI = Brief Pain Inventory.

$R^2 = .54, p < .01$