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Author manuscript

AIDS Care. Author manuscript; available in PMC 2017 May 01.

Published in final edited form as:

AIDS Care. 2016 May ; 28(5): 598–602. doi:10.1080/09540121.2015.1120269.

Loneliness and Substance Use: The Influence of Gender among HIV+ Black/African American Adults 50+

Zachary L. Mannes[1], **Larry E. Burrell II**[1], **Vaughn E. Bryant**[1], **Eugene M. Dunne**[1], **Lauren E. Hearn**[1], and **Nicole Ennis Whitehead**[1]

[1]Department of Clinical and Health Psychology, College of Public Health and Health Professions, University of Florida, Gainesville, FL

Abstract

Estimates suggest 30% of adults report the highest levels of loneliness. Though men are more likely than women to use illicit substances and engage in heavy drinking, the prevalence of substance use in women is growing and their escalation towards dependence occurs more rapidly. Loneliness and substance use have greater relevance within the HIV+ population, with higher rates of substance misuse than the general population. However, the association between loneliness and substance use within HIV+ individuals remains understudied. The purpose of the present study was to test the hypothesis that there would be an association between loneliness and substance moderated by gender in HIV+ older adults. A cross sectional study was conducted between October 2013 and January 2014. Study participants included 96 HIV-positive Black/African American men and women recruited through the University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES) in Jacksonville, Florida. Participants completed an interviewer-administered assessment examining mental and behavioral health. Pearson correlations examined associations between loneliness and substance use. Binary logistic regression analyses stratified by gender examined the association between loneliness and substance use while controlling for covariates. Among women, loneliness was associated with illicit drug use, AOR=3.37, 95% CI: 1.23 – 9.21, p =. 018 and heavy drinking, AOR=2.47, 95% CI: 1.07 – 5.71, p =. 033. No significant associations were found between loneliness and illicit drug use, and heavy drinking in men. Substance use among women in this population may be

Corresponding Author: Zachary L. Mannes, Graduate Research Assistant, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 908-307-6939, zmannes@phhp.ufl.edu.

Larry E. Burrell, M.S., Predoctoral Fellow, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 352-273-6013, leburrell2@phhp.ufl.edu

Vaughn E. Bryant, Sc.M., Predoctoral Fellow, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 352-273-6013, vebryant@phhp.ufl.edu

Eugene M. Dunne, M.A., Predoctoral Fellow, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 352-273-6013, emdunne@phhp.ufl.edu

Lauren E. Hearn, M.S., Graduate Research Assistant, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 352-273-6013, lehearn@phhp.ufl.edu

Nicole Ennis Whitehead, Ph.D., Assistant Professor, Department of Clinical & Health Psychology, College of Public Health and Health Professions, University of Florida, P.O. Box 100165, 1225 Center Drive, Room 3146, Gainesville, FL 32610-0165, Phone: 352-273-6145, newhitehead@phhp.ufl.edu

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linked to loneliness. Interventions should be gender specific. Further research into this association is necessary as it will likely have important clinical implications for this population.

Keywords

Loneliness; Gender; HIV; Substance Misuse

Introduction

Loneliness, a feeling attributed to perceived low quantity or quality social relationships, is reported in up to 30% of the general population, with highest levels reported by 45 – 55 year olds (Hawkley & Cacioppo, 2010; Nolen-Hoeksema & Ahrens, 2002; Peplau, 1982; Wheeler, Reis, & Nezlek, 1983). Loneliness has been linked to alcohol and substance use, including the use of cocaine and analgesics (Åkerlind & Hörnquist, 1992; Hawkley & Cacioppo, 2010; Jylhä, 1994; McWhirter, 1990; Rokach, 2002). Loneliness is also associated with poorer substance abuse treatment outcomes (Rychtarik, Foy, Scott, Lokey, & Prue, 1987; Strug & Hyman, 1981).

Substance use disproportionately affects men as compared to women ("Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings (No. NSDUH Series H-46, HHS Publication No.(SMA) 13–4795)," 2013). Nevertheless, prevalence of substance abuse is growing in women and their escalation of substance use occurs more rapidly (Brady & Randall, 1999; Hernandez-Avila, Rounsaville, & Kranzler, 2004).

Loneliness and substance are more prevalent within the HIV+ population compared to the general population (Green et al., 2010; Mishra, kiran Behera, & Jena, 2013; Moore et al., 2009). Studies involving HIV+ men suggest loneliness has been associated with a lower CD4 T-lymphocytes count, and disease progression (Kiecolt-Glaser, Ricker, & George, 1984; Herbert & Cohen, 1984).

Loneliness and substance use may be even more salient within HIV+ adults 50+. Older HIV + adults are more vulnerable to the consequences of intoxication and substance misuse due to their HIV status (Dowling, Weiss, & Condon, 2008; Karpiak, Shippy, & Cantor, 2006; Vance, 2010). HIV+ older adults reported higher levels of loneliness as compared to younger HIV+ adults, and depression was associated with loneliness in this sample (Grov, Golub, Parsons, Brennan, & Karpiak, 2010). Older HIV+ adults have limited and/or insufficient social networks and disproportionately high rates of substance use among HIV+ older adults (High et al., 2012). Nevertheless, the association between loneliness and substance abuse in this population remains understudied. The purpose of the present study was to test the hypothesis that there would be an association between loneliness and substance moderated by gender in HIV+ older adults.

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Methods

Participants and Recruitment

This study was approved by the University of Florida Institutional Review Board. Participants who were HIV+, identified as Black/African American, and were aged 50+ were recruited through the University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES) between October 2013 and January 2014. Clinic staff described the study and obtained written informed consent. Urine samples were collected and interviewer-administered assessments via computer tablet using the Research Electronic Data Capture (REDCap) application were completed. Participants received a $25 gift card upon completion.

Measures

Demographics—Gender, age, race, income, and education were collected via questionnaire.

Loneliness—The 20-item University of California Los Angeles (UCLA) Loneliness Scale has a test-retest reliability of (r= 0.73) and high internal consistency (α = 0.96) (Russell, Peplau, & Ferguson, 1978). The measure uses a likert scale ranging from 1 (never) to 4 (always) with higher scores indicating greater loneliness. Loneliness was defined as one standard deviation above the mean, dichotomizing participants into “not lonely” (0–31.5) and “lonely” (31.5–60) (Adams, Sanders, & Auth, 2004; Özdemir & Tuncay, 2008).

Depressive symptoms—The 21-item Beck Depression Inventory-II (BDI-II) assessed depressive symptoms in the past two weeks. Scores range from 0–63 yielding categories of minimal (0–9), mild (10–16), moderate (17–29),and severe (30–63) depressive symptoms (Beck, Ward, & Mendelson, 1961).The BDI has high test-retest reliability (ρ = 0.93) and internal consistency (α = 0.91) (Beck, Steer, & Brown, 1996).

Substance Use—Substance use was assessed via self-report and urinalysis using CLIA 12-Panel Instant Drug Test Cup (CLIAwaived, 2014). Results of self-reported marijuana and crack use in the past six months and biologically confirmed illicit drug use were used to create variables dichotomizing participants into positive or negative for substance use.

Heavy Drinking—Heavy drinking was assessed using self-reported number of drinks in the past 7 days. Participants were dichotomized into heavy drinkers and non-heavy drinkers based on Center for Disease Control (CDC) criteria (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011; Kanny, 2015).

Statistical Analyses

The bivariate relationship between loneliness and substance use was examined. The gender-specific relationships between loneliness and substance use were explored with binary logistic regressions stratified by gender controlling for the following covariates: time since diagnosis, income, age, and depressive symptoms.

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Results

Participants (N = 96) had a mean age of 55.77 years (SD = 5.27;), and 62.9% were female with 82.1% reporting incomes <$20,000/year. Mean years since HIV diagnosis was 14.80 (SD = 10.61), average CD4 cell count was 540.81 (SD = 277.83) and 28.6% of the sample had a detectable viral load (Table 1). Fifty percent of participants tested positive for illicit drugs. Cannabis was the most prevalent (29.5%) and 28.1% of participants met heavy drinking criteria. No significant differences in average loneliness scores were observed beteween men and women ($t(94)=.431$, $p=.668$).

Results from unadjusted analysis of self-report data indicated that loneliness predicted self-reported crack use in women, AOR=3.12, 95% CI=1.04–9.37, p=.042; however, this association was not observed in adjusted models. After adjusting for covariates, loneliness was predictive of marijuana use in women, AOR=2.96, 95% CI: 1.01 – 8.64, p =.047. In men, while loneliness was not predictive of marijuana use, AOR=2.68, 95% CI: 0.14 – 13.85, p =.770, the overall model for marijuana use was significant, $\chi^2(5) = 11.79$, p =.038, accounting for 46.6% of variance, of which, correctly classifying 67.9% of male marijuana smokers. Loneliness was significantly associated with heavy drinking in women, AOR=2.47, 95% CI: 1.07 – 5.71, p=.033, but not men.

Using biologically confirmed substance use data, we examined the moderation of loneliness and substance use by gender. We found that the overall illicit drug use model was significant in women, $\chi^2(5) = 12.541$, p =.028 with 26.3% of the variance in illicit drug use explained and 70.2% of female participants correctly classified (see Table 2). Within the model, loneliness was significantly associated with illicit drug use in women, AOR=3.37, 95% CI: 1.235 – 9.219, p =.018. The model was not significant for men, $\chi^2(5) = 2.356$, p = .798, and loneliness was not associated with illicit drug use. The addition of loneliness explained an additional 14.0% of the variance in women, and only 0.8% of the variance among men.

Discussion

Consistent with previous literature, no significant differences in loneliness scores were observed between men and women. Our hypothesis that there would be a positive association between loneliness and substance use in men was not supported. Contrary to our expectations and previous literature, there was a positive association between loneliness and substance use as loneliness was associated with heavy drinking and illicit drug use in women (Bonin, McCreary, & Sadava, 2000). One possible explanation of our findings is that men may be utilizing alternative strategies to combat their loneliness. “Accept and Reflect,” a coping strategy that involves becoming aware of fears and needs through solitude, may prompt the planning of alternative methods of overcoming loneliness in men (Rokach & Brock, 1998). Solitude can decrease the need to depend on others leading to feelings of independence contentment. Conversely, women may be more likely to “Distance and Deny,” a strategy typified by distancing oneself by utilizing alcohol and drugs (Rokach & Brock, 1998). In a previous study, women were more likely to cope with their feelings of loneliness through distance and denial (Neogi, 2014). In our sample it is possible that the relationship

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between loneliness and substance observed may reflect differences in coping strategies in HIV+ older adults.

Another explanation is that the affective states associated with substance use may vary by gender. For example, a strong association between anger and alcohol use has been found in men (Harder, Ayer, Rose, Naylor, & Helzer, 2014). Men also generally demonstrate stronger relations between substance dependence and major depression (Grant, 1995). Though loneliness and depression are related, loneliness is a unique construct in that it is contingent upon perceived social support (West, Kellner, & Moore-West, 1986). No significant relationships were observed between depression and substance use in this study. Previous studies examining loneliness and depression have found that loneliness accounts for significant amounts of additional variance when accounting for depression (Wilbert & Rupert, 1986). Other researchers have concluded that loneliness is associated with low social support, and may not be a necessary part of depression (Adams et al., 2004). Those aging with HIV have limited social networks and have a heightened need for social support (High et al., 2012; Whitehead, Hearn, & Burrell, 2014).

Although women generally have more social support due to increased network size (Shumaker & Hill, 1991), disapproval related to HIV status within a women's social network may lead to feelings of increased loneliness (Belle, 1987). Women in our sample may be more likely to be exposed to negative social relationships, consequently increasing their substance use. Understanding the underlying mechanism of loneliness leading to substance abuse may help improve treatment outcomes in this population.

Our investigation into the association between loneliness and substance use in women yields important findings and has some limitations. First, the relatively small samples size and homogeneity of the sample limit our ability to make inferential claims. Second, the cross-sectional design inhibits the ability to establish causal relationships. Despite these limitations, this study contributes to the sparse scholarship examining gender differences in how loneliness can affect substance use. Additionally, strengths of our study include use of both self-report and biologically confirmed substance use data. Furthermore, stratifying by gender allowed us to examine unique differences in health behavior between the sexes.

The association between loneliness and substance use within women support calls for greater emphasis of this construct in the continuum of care (Mishra et al., 2013), and this study suggests clinicians should target loneliness in HIV+ women. Future research should attempt to elucidate the underlying mechanism of our observed association.

Acknowledgments

This work was supported by the National Institute of Mental Health (NIMH) under grant number R25MH080665 and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) under grant number U24AA02002.

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Table I

Demographic, drug use, and mood inventory comparisons by gender (N= 96)[a]

VARIABLE	ENTIRE SAMPLE		Men		Women	
	M or *N*	S.D. or %	*M* or *N*	S.D. or %	*M* or *N*	S.D. or %
N	96		36		60	
Age	55.77	5.27	56.28	5.50	55.38	5.14
Race, African American	96	100	36	100	60	100
Marital Status						
Single Never Married	49	51	23	64	26	43
Married/Common Law	10	11	3	8	7	12
Divorced/Widowed/Separated	37	38	10	28	27	45
Income						
< 10,000	45	47	18	50	27	45
10,000 – 14,999	22	23	7	19	15	25
15,000 – 19,999	12	13	4	11	8	13
20,000 – 24,999	2	2	1	3	1	2
> 25,000	3	3	1	3	2	3
Declined	9	9	3	8	6	10
HIV Related Variables						
Years Since Diagnosis	14.83	10.63	16.63	10.54	13.56	10.6
CD4 Count	533.15	275.76	447.8	248.92	593.14	279.4
Detectable Viral Load	32	33	18	19	14	15
Self-Reported Non-Adherence	15	16	7	19	8	13
Substance Use						
Cigarettes	47	57	15	42	32	53
Heavy Drinking, 2+ Women, 3+ Men	27	28	7	19	20	33
Positive Urinalysis	48	50	19	53	29	48
Past 6 month illicit drug use (yes)						

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VARIABLE	ENTIRE SAMPLE		Men		Women	
	M or *N*	S.D. or %	*M* or *N*	S.D. or %	*M* or *N*	S.D. or %
Marijuana	28	30	12	33	16	27
Cocaine	22	23	8	23	14	23
Crack	12	13	4	11	8	13
Tricyclic's	15	16	7	20	8	13
Opiates	12	13	6	17	6	10
Mood Inventories						
UCLA Loneliness Scale	18.92	18.92	18.05	15.11	19.45	15.49
Becks Depression Inventory-II	9.46	7.11	8.36	6.61	10.1	7.37

[a]N may vary slightly according to missing data

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Table II

Odds Ratios and 95% CI's Stratified by Gender for Loneliness & Substance Use (N=96)

	Men				Women			
	Unadjusted OR[a] (CI[b])	***p*[c]**	**Adjusted OR[d] (CI[b])**	***p*[c]**	**Unadjusted OR[a] (CI[b])**	***p*[c]**	**Adjusted OR[d] (CI[b])**	***p*[c]**
Self-Reported Substance Use[e]								
Heavy Drinking								
Not Lonely	Referent		Referent		Referent		Referent	
Lonely	1.73(0.64–4.68)	.275	1.97(0.35–11.04)	.438	2.15(1.10–4.21)	.025*	2.47(1.07–5.71)	.033*
Crack Use								
Not Lonely	Referent		Referent		Referent		Referent	
Lonely	2.32(0.58–9.26)	.232	.82(.039–17.37)	.900	3.12(1.04–9.37)	.042*	7.82(0.85–71.46)	.068
Marijuana Use								
Not Lonely	Referent		Referent		Referent		Referent	
Lonely	1.38(0.52–3.69)	.510	1.39(0.14–13.85)	.776	1.66(0.76–3.62)	.200	2.96(1.01–8.64)	.047*
Biologically Confirmed Illicit Drugs								
Illicit Drug Use								
Not Lonely	Referent		Referent		Referent		Referent	
Lonely	1.14(0.51–2.58)	.740	0.74(0.20–2.63)	.643	2.02(1.05–3.90)	.035*	3.37(1.23–9.21)	.018*

[a] Odds ratio

[b] 95% confidence interval.

[c] p<.05*

[d] Adjusted for years since diagnosis, income, age, and depression

[e] Substance use in the last six months