

# Coping Styles and Illicit Drug Use in Older Adults With HIV/AIDS

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The prevalence of HIV infection in older adults is increasing; by 2015, over half of adults living with HIV/AIDS in the United States will be over 50. This study describes the prevalence of drug use and examines psychosocial predictors of drug use in a sample of HIV-infected adults aged 50 and older. Participants were 301 HIV-positive older adults enrolled in a clinical trial of a coping intervention aimed to reduce their depressive symptoms. One-quarter used illicit drugs in the past 60 days (48% any cocaine, 48% weekly marijuana, 44% any other drugs) with an average of 36 days for marijuana and 15 days for cocaine. After controlling for demographics, self-destructive avoidance was positively associated and spiritual coping was negatively associated with drug use. These findings suggest that assessment of drug abuse should be a routine part of care for older patients in HIV clinics. Furthermore, interventions designed to increase spiritual coping and decrease self-destructive avoidance may be particularly efficacious for HIV-infected older adults.

*Keywords:* HIV/AIDS, older adults, drug use, coping

The prevalence of illicit drug use in persons living with HIV/AIDS is disproportionately high. In a nationally representative sample of patients receiving care for HIV, half reported illicit drug use in the past 12 months (Bing et al., 2001). Drug use among HIV-infected individuals is problematic for a number of reasons. First, injection drug use contributes directly to the spread of HIV (Centers for Disease Control & Prevention, 2007), and noninjection drug use may contribute indirectly to the transmission of HIV through its association with high risk sexual behavior (Benotsch, Martin, Koester, Cejka, & Luckman, 2011; Brewer, Zhao, Metsch, Coltes, & Zenilman, 2007; Carey et al., 2009; Drumright, Patterson, & Strathdee, 2006; Plankey et al., 2007). Second, drug use is

associated with nonadherence to antiretroviral treatment, which increases HIV viral load and transmissibility (Arnsten et al., 2002; Wood et al., 2003) and disease progression (Baum et al., 2009; Doshi et al., 2012; Lucas et al., 2006; Wood et al., 2004). Third, drug use is associated with suboptimal virologic and immunologic responses to antiretroviral therapy (Henrich, Lauder, Desai, & Sofair, 2008; Lucas, Cheever, Chaisson, & Moore, 2001). The issue of drug use in older adults living with HIV is of particular concern because prior research suggests it does not decline with age as it does in the general population (Justice et al., 2004; Rabkin, McElhiney, & Ferrando, 2004).

Drug use among older adults in general remains understudied. In a recent systematic review, Simoni-Wastila and Yang, 2006 concluded that the prevalence of illicit drug use is increasing among older adults, and that it contributes to cognitive decline, limitations in social life, and impairment in normal functioning. However, information regarding factors associated with drug use in this population remains scarce. According to the National Survey on Drug Use and Health, the use of any street drug or nonmedical use of a prescription drug in the past year jumped from 5.1% in 2002 to 9.2% in 2007 in adults age 50 and older (Han, Gfroerer, & Colliver, 2009a). Furthermore, the prevalence of older adults with a substance use disorder is projected to double from 2.8 million (annual average) in 2002–2006 to 5.7 million in 2020 (Han, Gfroerer, Colliver, & Penne, 2009b).

The prevalence of HIV infection in older adults (50 years or older) is projected to escalate from 25% in 2007 to 50% by 2015 (Justice, 2010; Martin, Fain, & Klotz, 2008). This trend is largely the result of two factors. First, the number of new infections in older persons is increasing (CDC, 2009). Second, highly effective antiretroviral therapies and improved clinical care are increasing the life expectancies of HIV-infected persons, allowing many of them to survive into old age (Paul, Martin, Lu, & Lin, 2007).

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However, HIV is believed to accelerate the aging process. As a result, HIV-positive older adults are prescribed high amounts of medications and live with an elevated level of comorbid health conditions, including opportunistic infections, hypertension, and dementia (Kirk & Goetz, 2009; Klein, 2011; Vance, Mugavero, Willig, Raper, & Saag, 2011). Furthermore, older HIV-positive adults report higher levels of depression and anxiety, smaller social networks, and less utilization of community health organizations than their younger counterparts (Chesney, Chambers, Taylor, & Johnson, 2003; Emler, 2006; Kalichman, Heckman, Kochman, Sikkema, & Bergholte, 2000; Pitts, Grierson, & Misson, 2005; Shippy & Karpiak, 2005). Thus, the burden of drug use may be magnified in older HIV-infected adults.

In HIV-infected persons, the general decline in drug use observed in the general population does not seem to occur (SAMHSA, 2010). In the Veterans Aging Cohort Study (VACS), a large prospective study of HIV-positive and HIV-negative veterans, Justice et al., 2004 found that drug abuse decreased with age in HIV-negative persons but not in HIV-positive persons. Further, Kilbourne, Justice, Rabeneck, Rodriguez-Barradas, and Weissman, 2001 found no significant differences in frequency of drug use between HIV-infected veterans over age 50 and HIV-positive younger veterans. In a separate analysis of VACS data, HIV-infected persons were more likely to use multiple drugs compared to HIV-uninfected persons who were more likely to be nonusers (Green et al., 2010). Despite this accumulating evidence that older adults with HIV infection are more likely to continue using drugs, studies have not yet examined psychosocial correlations with drug use in this population.

Living with HIV is associated with high levels of stress, including disclosure concerns (Rodkjaer, Sodermann, Ostergaard, & Lomborg, 2011), HIV-related neurocognitive impairment (Antinori et al., 2007; Heaton et al., 1995; Reger, Welsh, Razani, Martin, & Boone, 2002), and stigmatization (Chapman, 2002; Rutledge & Abell, 2005). The positive association between depression and drug use disorders is well-established in the general population (Compton, Cottler, Phelps, Abdallah, & Spitznagel, 2000; Grant et al., 2004; Swendsen & Merikangas, 2000) and in HIV-positive samples (Hampton, Halkitis, & Mattis, 2010; Lightfoot et al., 2005). It has been suggested that the principle motivation behind drug use is to escape or avoid experiences of negative affect or stress (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). HIV-positive adults also report using drugs to cope with stressful situations and with emotional distress. In a qualitative study exploring motivations of methamphetamine use in HIV-positive gay men, participants explained that drugs were used to self-medicate the negative affect associated with having HIV (Semple, Patterson, & Grant, 2002). Additionally, in a study examining behavioral changes following HIV diagnosis, high levels of positive coping and low levels of denial coping predicted reductions in drug use (Collins et al., 2001). Several researchers have also found that active coping styles, such as religious coping or coping through action, may serve as protective factors and predict reductions in drug use in HIV-positive samples (Barrett et al., 1995; Hampton et al., 2010; Pence et al., 2008). However, the role of coping in older adults has not been examined.

Depression, quality of life, and the ways in which individuals cope with stressful situations are important to consider in HIV-positive older adults for several reasons. First, rates of depression

are nearly two times higher in HIV-positive individuals than the general population (Ciesla & Roberts, 2001). Second, although depression is generally lower in older adults than their younger and middle-aged counterparts (Blazer & Hybels, 2005; Ernst & Angst, 1995), it remains elevated in older individuals infected with HIV (Groves, Golub, Parsons, Brennan, & Karpiak, 2010; Heckman et al., 2002; Kalichman et al., 2000). Third, studies comparing older adults in the general population to younger adults suggest that older adults may employ different coping strategies than their younger counterparts, typically opting for more avoidant than active approaches (Diehl, Coyle, & Labouvie-Vief, 1996; Folkman, Lazarus, Pimley, & Novacek, 1987). Finally, health related quality of life may play a particularly prominent role in the lives of HIV-infected older adults, whose physical health declines both as a function of one's age and disease status (Goulet et al., 2007; Lyons, Pitts, Grierson, Thorpe, & Power, 2010).

The purpose of this study was to examine the relationship between psychosocial factors and illicit drug use among HIV-infected older adults. The specific aims were to (a) describe the prevalence of drug use in a diverse sample of HIV-infected persons 50 years or older adults and (b) examine the associations between coping styles, depression, and quality of life with drug use in this sample. We hypothesized that drug use in HIV-infected older adults would be associated with less active coping (social support seeking, solution-focused coping, and spiritual coping) and more avoidant coping (distancing avoidance and self-destructive avoidance), even after accounting for quality of life and depression.

## Method

### Participants and Procedures

This study was part of a multisite randomized clinical trial that tested the efficacy of a coping group intervention to reduce depressive symptoms in HIV-infected older adults (Heckman et al., 2011). This was conducted in New York, NY, Columbus, OH, and Cincinnati, OH. Recruitment procedures included distribution of brochures and, face-to-face interactions at AIDS service organizations and advertisements in AIDS-related publications.

The eligibility criteria were: (a) 50 years of age or older; (b) a diagnosis of HIV infection or AIDS; (c) a score of 10 or higher on the *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996); (d) a score of 75 or greater on the *Modified Mini-Mental State Examination* to rule out participants with severe cognitive deficits (3MS; Teng & Chui, 1987); and (e) voluntary provision of informed consent. A cut-off of 10 on the BDI-II was used to ensure that participants had minimal elevation of depressive symptoms. Between November 2004 and March 2007, 405 individuals sought enrollment into the study. Of these, 349 satisfied eligibility criteria (53 did not meet the BDI-II screening criteria and three scored below 75 on the 3MS) and 310 completed the baseline assessment. Of these, drug use data were available for 301 participants (97% of the sample).

The current study analyzed data collected at the baseline assessment. Participants completed questionnaires administered through Audio-Computer Assisted Self-Interviewing (A-CASI) technology, which has been shown to increase honesty when reporting sensitive and potentially stigmatizing behaviors, such as illicit drug

use (Newman et al., 2002; Perlis, Des Jarlais, Friedman, Arasteh, & Turner, 2004). The assessment required approximately 90 minutes to complete and participants received \$30.

## Measures

**Coping strategies.** Participants completed a 40-item measure with five subscales that assess strategies for coping with HIV-related stress specific to older adults. (Hansen et al., 2012). The five specific subscales are: Solution-Focused Coping (e.g., “formed a plan of action in your mind”; seven items); Distancing Avoidance (e.g., “tried to forget the whole thing”; five items); Social Support Seeking (e.g., “talked with others with problems like yours”; six items); Self-Destructive Avoidance (e.g., “I started an argument or fight to get my anger out”; 14 items); and Spiritual Coping (e.g., “trusted your belief in God”; eight items). The scale demonstrates convergent and divergent validity for HIV-infected older adults based on correlations of each specific coping factor with validation measures (i.e., the Beck Anxiety Inventory, Geriatric Depression Scale, UCLA Loneliness Scale, and Coping Self-Efficacy Scale; Hansen et al., 2012). To avoid redundancy with the outcome variable, three questions regarding drug or alcohol use were removed (e.g., “I used drugs to forget”), leaving 37 items. Participants responded to each item using a 4-point Likert scale (1 = *Not used* to 4 = *Used a great deal*). Mean subscale scores were calculated, with higher scores representing greater use of that coping style. Each factor in the current study demonstrated good internal consistency: Spiritual Coping ( $\alpha = .91$ ), Distancing Avoidance ( $\alpha = .81$ ), Social Support Seeking ( $\alpha = .86$ ), Self-Destructive Avoidance ( $\alpha = .73$ ), and Solution-Focused Coping ( $\alpha = .89$ ).

**Geriatric Depression Scale (GDS; Yesavage et al., 1983).** The GDS is a 30-item yes/no scale developed specifically for measuring depression in older adults ( $\alpha = .90$ , current study). Due to the high prevalence of somatic complaints in aging adults, the GDS focuses on cognitive and affective aspects of depression rather than somatic symptoms to have greater discriminate power. The exclusion of somatic items is particularly useful when assessing an HIV-positive population because it avoids potential overlap between somatic symptoms of depression, HIV disease manifestation, and medication side effects. Items were summed so that higher scores indicate greater symptomology.

**Functional assessment of HIV infection (FAHI; Peterman, Cella, Mo, & McCain, 1997).** The revised FAHI is a 44-item measure that assessed quality of life in individuals with HIV across five domains: Physical well-being (e.g., “I am bothered by side effects of treatment”; 10 items), social well-being (e.g., “I have people help me if I need help”; eight items), emotional well-being (e.g., “I worry about dying”; 10 items), functional/global well-being (e.g., “I have accepted my illness”; 13 items), and cognitive functioning (e.g., “My thinking is clear”; three items). Participants responded to each item using a 5-point rating scale (0 = *Not at all* to 4 = *Very much*). After reverse coding appropriate items, responses were summed for an overall health-related quality of life score, with higher scores indicating a greater perceived quality of life (potential range: 0–176;  $\alpha = .93$ ).

**Substance use.** Participants indicated the number of days in the past 60 days during which they used various illicit drugs: marijuana, crack or cocaine, heroin, ecstasy, GHB, crystal meth,

ketamine, other injection drugs, and overuse of prescription drugs. For marijuana, participants who used eight or more times (i.e., at least weekly use) were categorized as “drug users.” For all other drugs, participants who reported any use were categorized as “drug users.” Given the increased acceptance of marijuana use, especially among the chronically ill (Gieringer, 2003) and because marijuana carries a lower risk of addiction (Anthony, Warner, & Kessler, 1994; Wagner & Anthony, 2002), we applied a higher threshold for marijuana. All others were categorized as “nonusers.” Participants also reported how many days they had consumed alcohol in the past 60 days.

**Demographic characteristics.** Participants indicated their age, sex, income, ethnicity, education level, and sexual orientation. In addition, participants reported HIV-specific information such as year diagnosed with HIV and CD4 counts.

## Statistical Analysis

Descriptive statistics were used to characterize drug use in the sample. To compare drug user and nonuser groups, chi-square tests for categorical variables and *t* tests for continuous variables were conducted. Separate bivariate logistic regression analyses were performed to examine associations among drug use and seven predictor variables: solution-focused coping, spiritual coping, social support seeking, self-destructive avoidance, distancing avoidance, depression, and quality of life. Next, all predictor variables and relevant demographic variables (age, gender, education, ethnicity, sexual orientation, and current alcohol use) were entered into a multivariate regression to identify factors significant in the final model. Odds ratios and 95% confidence intervals are reported.

## Results

### Demographic Characteristics

The sample included 202 men and 99 females, ranging in age from 50 to 76 (average = 55.5,  $SD = 4.8$ ). While more participants were from New York City (79.1%) than Ohio (20.9%), they did not differ on rates of drug use. A little over half the participants were African American (58%), self-identified as heterosexual (54%), and had an annual income of less than \$10,000 (54%). The average participant had completed 13.0 ( $SD = 2.43$ ) years of education and had been living with HIV for 12.7 years ( $SD = 5.1$ ). Sixty percent had progressed to AIDS, and participants' most recent CD4 count ranged from 5 to 1,451 (median = 462.5). Most participants (65.8%) indicated that to the best of their knowledge they were infected by HIV through unprotected sex (17.3% injection drug use, 11% don't know, 3% blood transfusion, 3% other). Almost half of the sample consumed alcohol (43.9%), and drinkers had consumed alcohol on an average of 15 out of the last 60 days ( $SD = 18.6$ , range: 1–60).

### Aim 1: Prevalence of Drug Use

Overall, 75 participants (24.9%) were categorized as drug users. An additional 21 participants used marijuana infrequently (<8 time/month) but were not classified as users. Among those categorized as drug users, the most commonly used substances were

cocaine ( $n = 36, 48.0\%$ ), marijuana ( $n = 36, 48.0\%$ ), and other drugs, including opioids and benzodiazepines ( $n = 33, 44.0\%$ ). Frequency of drug use among users is shown in Table 1. Among drug users, marijuana use averaged 36 days ( $SD = 20$ ) and cocaine use averaged 15 days ( $SD = 16$ ) out of the past 60 days. As shown in Table 2, compared to nonusers, drug users were younger, more likely to be male, and consumed alcohol more frequently. They also reported a lower quality of life, higher levels of depression, greater use of self-destructive avoidance, and less frequent use of solution-focused coping and spiritual coping.

## Aim 2: Predictors of Drug Use

Table 3 presents the correlation matrix of all predictor variables. As would be expected, quality of life and depression demonstrated a strong inverse correlation. Additionally, depression and quality of life both correlated most strongly with self-destructive avoidant in the expected directions.

Results of the bivariate and multivariate regression models are summarized in Table 4. Psychosocial factors significantly associated with drug use in bivariate analyses were more depression, poorer quality of life, less use of spiritual and solution-focused coping, and greater use of self-destructive avoidance. More frequent alcohol consumption was also associated with drug use. Social support seeking and distancing avoidance were not associated with drug use.

In the multivariate model that accounted for demographic factors, spiritual coping, self-destructive avoidance, and more frequent of alcohol consumption remained significant predictors of drug use. For every one-unit increase in spiritual coping, participants were 1.83 times less likely to use drugs. For every one-unit increase in self-destructive avoidance, participants were 2.86 times more likely to use drugs. Each additional day a participant consumed alcohol was associated with a 2% increase in the likelihood of illicit drug use. Depression, quality of life, and solution-focused coping were unrelated to drug use in the multivariate model.

## Discussion

This study identified high rates of illicit drug use among HIV-positive adults aged 50 and older. In the past 60 days, nearly one-quarter of participants were categorized as drug users. For comparison, among respondents aged 50 to 59 in the general population who completed the National Survey on Drug Use and Health, 9.4% reported use of any illicit drug (marijuana, cocaine, heroin, hallucinogens, inhalants, or nonmedical use of pain relievers, tranquilizers, stimulants, or sedatives) in the past year. Thus, drug use may be over two times higher in HIV-positive compared

to HIV-negative older adults. Notably, illicit drug use was defined more stringently and over a shorter period of time (2 months vs. 12 months) in our study, suggesting that the difference in drug use may be even greater. Furthermore, the rate of drug use in our sample is comparable to that of younger HIV-positive adults. In a nationally representative sample of HIV-infected adults, approximately half reported using any illicit drug (marijuana, sedatives, amphetamines, analgesics, cocaine, inhalants, lysergic acid diethylamide or hallucinogens, or heroin) during the previous 12 months (Bing et al., 2001).

In the multivariate model, spiritual coping, self-destructive avoidance, and frequency of alcohol consumption were significant predictors of current drug use in our sample of older HIV-positive adults. Specifically, individuals who used spiritual practices to cope with HIV-related stress were less likely to use drugs, while individuals who utilized self-destructive behaviors to cope and who consumed alcohol more frequently were more likely to use drugs. Past research has documented a strong positive association between the use of avoidant coping and negative health outcomes (Hansen et al., 2006; Ironson et al., 2005; Leserman et al., 2000). In this body of literature, there has been a tendency to dichotomize coping strategies into two-dimensions, namely avoidant coping and active coping. Our study is unique and extends previous research because we measured coping across five dimensions that covered active and avoidant methods. Self-destructive avoidance and distancing avoidance are specific strategies that fall under the broader category of avoidant coping. Thus, results from the current study provide a more nuanced understanding of the relationship between avoidant coping and drug use by demonstrating that self-destructive avoidance—rather than distancing avoidance—drives the relationship between avoidant coping and drug use. These findings suggest that the use of illicit drugs may be another variant of self-destructive avoidance. In other words, individuals may rely on drugs to escape their problems because they do not know how to manage stress in more adaptive ways. In fact, the self-destructive behavior subscale traditionally includes questions about drug and alcohol use, but these variables were removed in our analyses to avoid confounding with the outcome variable.

The negative association between spiritual coping and illicit drug use is consistent with previous research documenting that religiosity and spirituality are associated with improved health outcomes (Brennan, 2004; George, Ellison, & Larson, 2002; Koenig, McCullough, & Larson, 2001; Miller, & Thoresen, 2003). While an emerging literature suggests that religiosity may not be a protective factor for homosexual men, further research is warranted (Eliaison, Burke, van Olphen, & Howell, 2011; Rostosky, Danner, & Riggle, 2007). While definitions of these constructs vary, religiosity is typically defined as participation in organized religious activities, rituals, and practices, while spirituality is defined as the internal aspects of individuals' spiritual experiences and beliefs (Miller & Thoresen, 1999). Among HIV-positive persons, research suggests that religiosity and spirituality are associated with larger social networks, better overall mood, better medication adherence, greater optimism, and fewer medical comorbidities (Cotton et al., 2006; Cuevas, Vance, Viamonte, Lee, & South, 2010; Parsons, Cruise, Davenport, & Jones, 2006). To the best of our knowledge, this is the first study to examine the relationship between spiritual coping and drug use among older

Table 1  
Days of Drug Use Among Drug Users ( $n = 75$ )

Drug	<i>M</i>	<i>SD</i>	Range
Marijuana ( $n = 36$ )	36	20	8–60
Cocaine ( $n = 36$ )	15	16	1–60
Other ( $n = 33$ )	13	15	1–60

Note. The "other" category includes: heroin, ecstasy, GHB, crystal meth, ketamine, abuse of prescription drugs, and any other injection drug use.

Table 2  
Description of the Sample by Drug Use

Variable	Drug user (N = 75)	Nonuser (N = 226)	Statistic
<i>Demographics</i>			
Ethnicity, n (%)			$\chi^2(3) = 3.03$
African American	41 (54.7%)	133 (58.8%)	
Caucasian	25 (33.3%)	62 (27.4%)	
Hispanic/Latino	3 (4.0%)	19 (8.4%)	
Other	6 (8.0%)	12 (5.3%)	
Gay or bisexual, n (%)	40 (53.3%)	98 (43.4%)	$\chi^2(1) = 2.26$
Male, n (%)	62 (82.7%)	140 (61.9%)	$\chi^2(1) = 10.95$
Education (years), M (SD)	13.40 (2.24)	12.86 (2.48)	$t(299) = -1.68$
Age, M (SD)	54.47 (3.01)	55.87 (5.21)	$t(298) = 2.21^*$
Alcohol (days), M (SD)	11.31 (15.92)	5.02 (13.56)	$t(298) = -3.32^{**}$
<i>HIV disease</i>			
AIDS diagnosis, n (%)	42 (56.0%)	138 (61.1%)	$\chi^2(1) = 0.60$
Mode of transmission, n (%)			$\chi^2(4) = 0.18$
Unprotected sex	49 (65.3%)	149 (65.9%)	
Injection drug use	15 (20.0%)	37 (16.4%)	
Don't know	9 (12.0%)	24 (10.6%)	
Blood transfusion	0 (0.0%)	9 (4.0%)	
Other	2 (2.7%)	7 (3.1%)	
CD4 count, M (SD)	484.9 (259.8)	510.1 (291.1)	$t(242) = 0.78$
Years living with HIV, M (SD)	12.29 (4.94)	12.89 (5.22)	$t(242) = 0.78$
<i>Psychosocial</i>			
Spiritual coping, M (SD)	2.02 (0.75)	2.40 (0.89)	$t(299) = 3.39^*$
Social support seeking, M (SD)	2.20 (0.68)	2.25 (0.75)	$t(299) = 0.60$
Solution-focused coping, M (SD)	2.18 (0.61)	2.42 (0.73)	$t(299) = 2.59^*$
Self-destructive avoidance, M (SD)	1.65 (0.34)	1.47 (0.38)	$t(299) = -3.67^{**}$
Distancing avoidance, M (SD)	2.10 (0.66)	1.95 (0.68)	$t(299) = -1.73$
Depression (GDS), M (SD)	15.38 (6.94)	12.16 (7.74)	$t(286) = -3.13^{**}$
Quality of life (FAHI)	92.54 (21.72)	101.42 (26.19)	$t(263) = 2.50^*$

\*  $p < .05$ . \*\*  $p < .01$ .

HIV-positive adults. Given the cross-sectional design, however, we are unable to determine the direction of the relationship between spiritual coping and illicit drug use. Spiritual coping may help individuals reduce their use of illicit drugs (or prevent them from initiating drug use in the first place), while drug use may also affect one's level of spiritual coping. Spirituality is a core component in 12-step programs, such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA), and individuals who participate in these programs may learn to utilize spiritual coping. Studies evaluating spiritually-focused interventions have found significant increases in participants' spirituality after completing the intervention, and that higher spiritual involvement was related to abstinence (Brown et al., 2007; Jarusiewicz, 2000; Robinson, Cranford, Webb, & Brower, 2007). Future research might further evaluate

the extent to which spiritual coping is learned through participation in a drug treatment program and whether utilization of spiritual coping promotes sustained abstinence.

After accounting for coping, depression was unrelated to drug use in the multivariate model. We suspect that coping may mediate the relationship between depression and drug use. That is, depression may cause an individual to adopt maladaptive coping strategies (e.g., self-destructive avoidance) at the expense of more adaptive ones, which in turn may lead to increases in drug use. The positive association between avoidant coping and depression is well documented in the literature (Catz, Gore-Felton, & McClure, 2002; Gore-Felton et al., 2006; Simoni & Ng, 2000). Furthermore, Smith, Tarakeshwar, Hansen, Kochman, and Sikkema, 2009 found that the positive

Table 3  
Correlational Matrix of Predictor Variables

	1	2	3	4	5	6	7
1. Depression							
2. Quality of life	-.77**						
3. Spiritual coping	-.22**	.12*					
4. Social support seeking	-.26**	.21**	.38**				
5. Solution-support coping	-.33**	.34**	.47**	.60**			
6. Self-destructive avoidance	.48**	-.54**	.04	.14*	.04		
7. Distancing avoidance	.14*	-.12*	.05	.14*	.16*	.26**	

\*  $p < .05$ . \*\*  $p < .01$ . Two-tailed tests.

Table 4  
*Bivariate and Multivariate Predictors of Drug Use*

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
<i>Demographics</i>		
<i>Ethnicity/race</i>		
African American	0.77 (0.43, 1.37)	1.58 (0.65, 3.85)
Hispanic/Latino	0.39 (0.11, 1.44)	1.00 (0.22, 4.61)
Other	1.24 (0.42, 3.67)	2.78 (0.61, 12.67)
Caucasian	1.00 (Reference)	1.00 (Reference)
Education (years)	1.10 (0.98, 1.23)	1.16 (0.95, 1.41)
Sexual orientation (gay/bisexual)	0.67 (0.40, 1.13)	1.62 (0.66, 3.93)
Gender (male)	2.93 (1.52, 5.64)**	1.96 (0.78, 4.92)
Age	0.93 (0.87, 0.99)*	0.97 (0.89, 1.05)
Alcohol (days)	1.03 (1.01, 1.04)**	1.02 (1.00, 1.04)*
<i>Psychosocial</i>		
Spiritual coping	0.58 (0.42, 0.80)**	0.55 (0.34, 0.89)*
Social support seeking	0.90 (0.62, 1.28)	1.71 (0.98, 3.00)
Solution-focused coping	0.60 (0.41, 0.89)*	0.55 (0.28, 1.07)
Self-destructive avoidance	3.51 (1.73, 7.12)**	2.86 (1.04, 7.86)*
Distancing avoidance	1.40 (0.95, 2.04)	1.16 (0.70, 1.93)
Depression (GDS)	1.06 (1.02, 1.10)**	1.02 (0.95, 1.09)
Quality of life (FAHI)	0.99 (0.98, 1.00)*	1.00 (0.98, 1.02)

\*  $p < .05$ . \*\*  $p < .01$ .

benefit of an intervention to reduce depression and grief in a sample of HIV-positive individuals who lost a loved one to AIDS was mediated by reductions in avoidant coping. Future longitudinal research is needed to clarify the temporal relationship between depression, coping, and drug use.

Our results underscore the importance of assessing drug use among older HIV-positive adults, and testing the efficacy of substance abuse treatment programs that incorporate spiritual coping and address self-destructive avoidance. To date, there has been virtually no research on the effectiveness of drug treatment programs for older adults. For those who do receive treatment, options are limited. In 2009, only 7% of substance abuse treatment facilities reported a program or group designed specifically for older adults or seniors (Han et al., 2009b). Previous research suggests that coping styles are malleable and can be changed through relatively brief focused interventions (Fife, Scott, Fineberg, & Zwickl, 2008; Pargament, 2001). Interventions designed to increase spiritual coping may prove particularly effective for HIV-infected older adults because they tend to be more religious and spiritual than their younger counterparts (Vance, Struzick, & Masten, 2008; World Health Organization, 2004). Because older HIV-positive adults have the unique combined stressors of both aging and HIV infection, spirituality may play a particularly important role in their lives. Spirituality and religiosity provide individuals with a means of coping with and overcoming their struggles in life by allowing them to interpret their difficulties within the context of their particular belief system. Spirituality can thus serve as a buffer to the stresses an individual experiences by offering a comforting sense of purpose and control even in the face of uncertainty (Brennan, 2008; Hall, 1998; Vance, Brennan, Enah, Smith, & Kaur, 2011; Vance & Woodley, 2008).

This study has several limitations. First, generalizability of our findings may be limited because the sample was recruited in large urban cities through HIV-related service organizations,

and thus likely had access to HIV and substance abuse treatment. In addition, the sample included persons who reported at least some depressive symptoms and did not have any major cognitive deficits. Future research on older HIV-positive substance users might include participants who are less connected to service organizations and have more serious substance use needs. Second, due to the cross-section design, we were unable to make inferences about causality. Longitudinal studies are needed to determine whether improvements in coping are associated with decreases in illicit drug use. Third, the degree to which this older population's drug use is influenced by unique generational effects, such as higher exposure to drug use when young, is unknown. Finally, we had only limited information about participants' drug use patterns and histories. Nevertheless, our study had several strengths, including the large sample size, diversity of participants, and multisite recruitment. In addition, we included coping variables and depression in the same model, allowing us to examine the unique contributions of each predictor variable.

In sum, our findings suggest that drug use in HIV-positive older adults is prevalent. As the number of HIV-infected older adults continues to increase, an understanding of the psychosocial characteristics that motivate drug use are urgently needed to inform intervention development. Findings from this study suggest that the ways individuals cope with HIV-related stress are highly correlated with drug use. Drug treatment programs might consider incorporating targeted interventions designed specifically to increase active coping strategies, including spiritual coping, and to decrease avoidant coping strategies. Additionally, assessing drug use in HIV clinics and other nontraditional settings may help to identify drug use among older adults. Future research is needed to test the efficacy of coping-based intervention strategies for reducing drug abuse in HIV-positive older adults.

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