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Relationship of Religiosity and Spirituality to Hazardous Drinking, Drug Use, and Depression Among Sexual Minority Women

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Abstract:

Using data from Wave 3 of the Chicago Health and Life Experiences of Women (CHLEW) study (N = 699) we explored whether religiosity and spirituality were associated with risk of hazardous drinking, drug use, and depression among sexual minority women (SMW; lesbian, bisexual) and possible differences by race/ethnicity. Participants were more likely to endorse spirituality than religiosity, and endorsement of each was highest among African-American SMW. We found no protective effect of religiosity or spirituality for hazardous drinking or drug use. An association initially found between identifying as very spiritual and past year depression disappeared when controlling for help-seeking. Among SMW with high religiosity, African-American SMW were more likely than White SMW to report hazardous drinking. Latina SMW with higher spirituality were more likely than White SMW to report drug use. Results suggest that religiosity and spirituality affect subgroups differently, which should be considered in future research on resiliency among SMW.

Key Words: Sexual minority women; hazardous drinking; depression; religiosity; spirituality; risk factors; protective factors

Introduction

Research on disparities in substance use and psychological distress among sexual minorities suggests that sexual minority women (SMW; lesbian, bisexual) are more likely than heterosexual women to report hazardous drinking, drug use, and depression (Balsam, Beauchaine, Mickey, & Rothblum, 2005; Bostwick, Boyd, Hughes, & McCabe, 2010; Drabble, Midanik, & Trocki, 2005; Hughes, Szalacha, & McNair, 2010; McCabe, Hughes, Bostwick, West, & Boyd, 2009; Trocki, Drabble, & Midanik, 2009; Wilsnack et al., 2008). SMW are also more likely than heterosexual women to seek treatment for psychological distress and substance use problems (Drabble et al., 2005; Grella, Greenwell, Mays, & Cochran, 2009; Jessup & Dibble, 2012). Research to date has focused disproportionately on risk factors, and there is a need to better understand factors that may protect against hazardous drinking, depression and drug use among sexual minorities (Balsam, 2003; Condit, Kataji, Drabble, & Trocki, 2011; Hughes, Matthews, Razzano, & Aranda, 2003; Kwon, 2013).

Studies in the U.S. suggest that religiosity is generally lower among sexual minorities than heterosexuals and that differences are most notable among women (Rostosky, Danner, & Riggle, 2008; Sherkat, 2002). In addition, sexual minorities appear to be more likely to embrace spiritual than religious identities (Eliason, Burke, van Olphen, & Howell, 2011; Halkitis et al., 2009) and endorsement of spirituality may be higher among sexual minorities compared to heterosexuals (Eliason et al., 2011). Spirituality generally refers to individual beliefs and practices and subjective experiences (such as seeking transcendence or feelings connection to a higher power) (Aldwin, Park, Jeong, & Nath, 2014; Allen & Lo, 2010). By contrast, religiosity is typically defined by involvement with doctrinal, organizational, and institutional dimensions of faith traditions (Koenig, King, & Carson, 2012).

In the general population, religiosity has largely been found to protect against hazardous drinking, drug use, and depression in both adults and adolescents (Allen & Lo, 2010; Bonelli & Koenig, 2013; Borders, Curran, Mattox, & Booth, 2010; Edlund et al., 2010; Haber, Grant, Jacob, Koenig, & Heath, 2012; Michalak, Trocki, & Bond, 2007). For example, higher levels of religiosity are associated with abstinence from drinking and lower rates of alcohol dependence (Michalak et al, 2007). Findings from a smaller body of literature that includes measures of spirituality also suggest a protective effect of spirituality in relation to hazardous drinking, drug use, and depression (Bonelli & Koenig, 2013; Chitwood, Weiss, & Leukefeld, 2008; Haber et al., 2012). However, at least one large population-based study in the U.S. found no protective effect of spirituality for past year illicit drug use and increased odds of reporting lifetime cocaine or injection drug use among individuals who reported higher levels of spirituality (Allen & Lo, 2010).

In contrast to research with general population samples, findings from recent studies of sexual minorities suggest that the role of religiosity as a risk or protective factor is mixed in relation to hazardous drinking and psychological distress (Anderton, Pender, & Asner-Self, 2011; Barnes & Meyer, 2012; Eliason et al., 2011; Page, Lindahl, & Malik, 2013; Rostosky, Danner, & Riggle, 2007; Rostosky, Danner, & Riggle, 2010). Using data from the National Longitudinal Study on Adolescent Health, Rostosky and colleagues (2010) found that religiosity was protective against heavy episodic drinking among young adult men (both heterosexual and sexual minority) and heterosexual women, but not among lesbians. Furthermore, this study found that religiosity was associated with increased risk among bisexual women.

Theoretically, the effects of religiosity on health occur primarily through behavioral self-regulation (e.g., encouraging less smoking, alcohol consumption, drug use), whereas spirituality

mediates the impact of stress on health by improving emotional self-regulation (e.g., reducing negative arousal and stress through cultivating calmness or refocusing attention) (Aldwin et al., 2014). From this perspective, religious alienation may increase risk of unhealthy behaviors and general distress (Aldwin et al., 2014). Because sexual minorities are not welcome in many religious contexts, and in some cases experience abuse or rejection (Wood & Conley, 2014), religiosity may have mixed effects on the risk of substance use and psychological distress among sexual minorities (Dahl & Galliher, 2010; Gattis, Woodford, & Han, 2014; Page et al., 2013; Ream & Savin-Williams, 2005). For example, some researchers have found that affiliation with non-affirming religious organizations may be associated with greater internalized heterosexism (Barnes & Meyer, 2012; Page et al., 2013; Ream & Savin-Williams, 2005).

There is a paucity of research on the potential protective effects of religiosity and spirituality among adult populations of SMW. Findings from a recent study examining protective effects of religiosity among women by sexual identity suggested that higher levels of religiosity were protective against hazardous drinking and drug use among both sexual minority and heterosexual women (Drabble, Trocki, & Klinger, 2016). However, this study had a number of limitations including a small sample of SMW, absence of measures of spirituality, and insufficient power to explore possible differences by race/ethnicity. In a study of college students, religiosity, but not spirituality, was protective against substance abuse for non-heterosexual compared to heterosexual students (Eliason et al., 2011). Given these somewhat inconsistent results there is a need for research with more diverse samples of adult sexual minorities.

In the general population, African-American and Latina women generally report lower levels of hazardous drinking, drug use, and depression compared to White women (Hasin &

Grant, 2015). By contrast, although some research has found lower rates of hazardous drinking among African American compared to White SMW (Lewis, Mason, Winstead, Gaskins, & Irons, 2016), many studies have found few differences, or even higher rates, of hazardous drinking among African-American and Latina SMW compared to White SMW (Cochran, Mays, Ortega, Alegria, & Takeuchi, 2007; Hughes et al., 2003; Hughes et al., 2006; Matthews et al., 2014; Mereish & Bradford, 2014). Similarly, research findings suggest higher rates of depression among SMW of color compared to heterosexual women of color (Cochran, Mays, Ortega, Alegria, & Takeuchi, 2007; Matthews, Hughes, Johnson, Razzano, & Cassidy, 2002; Mays, Cochran, & Roeder, 2004). Findings regarding depression among African-American and Latina SMW compared to White SMW are inconsistent (Aranda et al., 2015; Balsam et al., 2015; Jeong, Veldhuis, Aranda, & Hughes, 2016). Given that lower rates of hazardous drinking, drug use, and depression typically found among women of color compared to White women in the general population are not seen consistently among SMW, it seems likely that dynamics of risk and protection may not operate in the same way among SMW (Cochran et al., 2007; Hughes, Wilsnack, & Kantor, 2016; Hughes et al., 2006; Matthews et al., 2014; Mereish & Bradford, 2014). For example, cultural, religious, and familial norms against alcohol use, along with other factors that have been found to be protective against heavy/hazardous drinking among women of color (Zapolski, Pedersen, McCarthy, & Smith, 2014), may not provide similar protections for SMW of color.

The current study uses data from a large, diverse sample of lesbian and bisexual women and disaggregates constructs of religiosity and spirituality to explore three questions: 1) How does endorsement of religiosity and spirituality differ by race/ethnicity and other demographic characteristics among lesbian and bisexual women?; 2) Are religiosity and spirituality associated

with the study outcomes (past year hazardous drinking, drug use, and depression) among lesbian and bisexual women?; and 3) How do associations between religiosity and spirituality and the study outcomes differ by race/ethnicity?

Methods

Data for the current study are from 699 self-identified lesbian and bisexual women interviewed in Wave 3 (2010-2012) of the Chicago Health and Life Experiences of women (CHLEW) study, a longitudinal, community-based study of risk and protective factors associated with alcohol use and alcohol-related problems among SMW. Participants in the first wave of the CHLEW study (2000-2001) were predominately lesbian and were recruited using a broad range of strategies, including community-based organizations, media outreach, and individual social networks. Recruitment strategies focused on increasing representation of women who had been previously underrepresented in research, including lesbian women of color, older lesbians, and lesbians of lower socioeconomic status. In 2010-2012 (wave 3) a supplemental sample of younger women (ages 18-25), African American and Latina women, and bisexual women (N = 373) were recruited using a modified version of respondent-driven sampling (Martin, Johnson, & Hughes, 2015). Wave 3 data included a retention rate of 79% of the 447 participants in the original Wave 1 study.

Measures

Sexual identity. Sexual identity was assessed using an item that asked participants, "Recognizing that sexual identity is only one part of your identity, how would you define your sexual identity? Would you say that you are: 'only lesbian/gay,' 'mostly lesbian/gay,' 'bisexual,' 'mostly heterosexual,' 'only heterosexual/straight' or 'other'" (McCabe, Hughes, Bostwick, Morales, & Boyd, 2012; Skrocki, 1996). Women who identified as only lesbian or mostly

lesbian (n = 517), or bisexual (n = 182) were included in the current analyses. Because women who identified as only lesbian and mostly lesbian did not substantially differ on key study variables, they are combined as one group in the current study.

Religiosity and spirituality. *Religiosity.* Religiosity was assessed using responses to two questions. First, participants were asked, "What is your religious preference now?," with response options of Protestant, Catholic, Jewish, Other or None. Second, participants who indicated a religious preference (anything other than "none") were asked a follow-up question: "We would like to know how religious you would say you are. By 'religious' we mean how actively you currently follow the teachings of a specific religion and participate in activities of that religion. Would you say that you currently are: very religious, somewhat religious, or not at all religious?" The two religiosity items were used to construct a 3-category religiosity variable: no religious preference/not at all religious, somewhat religious, and very religious. We verified that there were no significant differences between participants reporting no religious preference and those indicating religion was not at all important (after identifying a religious preference) in relation to outcome variables before combining these categories. *Spirituality*: Spirituality was measured by the following question: "We would also like to know about your spirituality. By 'spirituality,' we mean how often you spend time thinking about the ultimate purpose of life or your own relationship to a higher power in life. In this sense, would you say that you currently are: 'very spiritual,' 'somewhat spiritual,' or 'not at all spiritual'." The religiosity measures were adopted from other national surveys (Michalak et al., 2007; Wilsnack, Wilsnack, & Klassen, 1984) and the spirituality measure was created to parallel the religiosity measure. The CHLEW study team used brief measures of spirituality and religiosity in the CHLEW study to minimize participant burden. Although the religiosity and spirituality variables were significantly

correlated (.285, p<.001), the size of the correlation was less than .3, which is considered small (Mukaka, 2012). Given sexual identity differences in prior literature we examined the effects of religiosity and spirituality separately for lesbian and bisexual women.

Alcohol, drug, and mental health variables. *Hazardous drinking (past 12 months)*. A dichotomous measure of hazardous drinking was constructed using four dichotomous variables: consuming six or more drinks in one day on one or more occasion in the past year (heavy episodic drinking), having consumed "enough to feel drunk" once or more in the past year, reporting one or more of five past year dependence symptoms (inability to stop drinking before becoming intoxicated, inability to stop or reduce alcohol consumption over time, memory lapses [blackouts] while drinking, rapid drinking, and morning drinking), and reporting one or more adverse drinking consequences (e.g., driving while intoxicated, concerns / complaints about drinking from family/friends, partner requests to cut down, arguments with partner with partner when drinking, arguments or fights with someone other than a partner or family member when drinking, and negative impact on obtaining work/promotion). Alcohol variables used in this study, such as symptoms of potential alcohol dependence and alcohol consequences, were adapted from other national studies in the U.S. (Midanik & Greenfield, 2000; Wilsnack, Kristjanson, Wilsnack, & Crosby, 2006; Wilsnack et al., 1984). Dichotomized (any/none) responses for each of the four indicators were used to create a hazardous drinking score (0-4). A hazardous drinking indicator was constructed by dichotomizing the 0-4 measure, with a score of 2 or more indicating hazardous drinking. The hazardous drinking index has been validated in the CHLEW sample (Riley et al., 2017) and has been used in research comparing sexual minority and heterosexual women (Drabble, Trocki, Hughes, Korcha, & Lown, 2013; Hughes, Johnson, Steffen, Wilsnack, & Everett, 2014; Hughes, Szalacha, Johnson et al., 2010; Johnson et

al., 2013; Matthews et al., 2013). *Drug use* was constructed as any past year non-medical use of three types of prescription drugs (tranquilizers, sleeping pills, or painkillers) or any use of five types of illicit drugs (uppers/ stimulants, cocaine/crack, heroin/illegal methadone, hallucinogens, or club drugs), or use of marijuana. *Past year depression.* Depression was assessed based on questions from the National Institute of Mental Health Diagnostic Interview Schedule, which approximates a clinical diagnosis of depression (Robins, Helzer, Croughan, & Ratcliff, 1981). Participants were asked whether they ever had two or more weeks when they experienced three or more depressive symptoms, such as appetite changes, trouble sleeping, feeling tired all the time, loss of interest in sex, feeling worthless, and difficulty thinking/concentrating. They were then asked whether these symptoms had persisted for two weeks or more (called an "episode"). Responses to a question about when the last episode of depression occurred was used to construct a past 12-month depression measure (one or more episodes in the past year vs. none).

We used two additional variables in follow-up analyses: internalized heterosexism and seeking help for an alcohol or drug problem. *Internalized heterosexism* questions were adapted from Herek and colleagues Internalized Homophobia Scale (IHP) (Herek, Cogan, Gillis, & Glunt, 1998; Herek, Gillis, & Cogan, 2009). The 10-item scale in the CHLEW study includes 5 items from a brief version of the IHP that was determined to be more suitable for administration with lesbians and bisexual women by the authors of the scale (Herek et al, 2009), which assess the degree to which participants agree with statements related to feeling uneasy about, and seeking to avoid, same-sex attraction (e.g., "I have tried to stop being attracted to women in general"; "I would like to get professional help in order to change my sexual orientation from lesbian/bisexual to straight"). The scale also includes 5 positive statements (e.g., I am proud that I am lesbian/bisexual), which were reverse-scored. Ten items were averaged for each participant

to create a composite internalized heterosexism score (range – 0 to 5). Lower scores on this scale indicate lower levels of internalized heterosexism (α = .83). *Past help-seeking* was constructed as a dichotomous variable comparing participants who responded in the affirmative with those who did not to either of the following two questions: "Have you ever gone to anyone— a treatment agency, Alcoholics Anonymous, anyone at all—for help with an alcohol problem of your own?," and "Have you ever gone to anyone—a treatment agency, Narcotics Anonymous, anyone at all—for help with a drug problem of your own?"

Demographic Characteristics. Demographic measures included age (<30 years, 30-39 years, 30-49 years, 50 and older), education (high school/GED or less, some college or 2-year degree, bachelor's degree, and graduate or professional degree), employment status (employed vs. not employed), and relationship status (partnered vs. not partnered). Race/ethnicity was constructed as a four-category variable (White, African American, Latina, or Asian/Pacific Islander [API]/Other); the small number of participants who identified as Asian/Pacific Islander, Native American or a biracial or multiracial were combined. Dichotomous variables were created for having any children living in the household (children in the home vs. no children in the home).

Data Analysis

We used Chi square analyses in comparisons of categorical variables and analysis of variance (ANOVA) in comparisons using continuous outcome measures. Follow-up tests were conducted on variables found to be significant in bivariate analyses (logistic regression for categorical variables and Bonferroni post hoc tests for ANOVA).

We used logistic regression analyses to test three models predicting past year hazardous drinking, drug use, and depression. First, we examined main effects of religiosity and spirituality

and demographics in relation to the three outcomes. Second, we added interaction terms to our regression models to examine potential interaction effects of race/ethnicity and religiosity and spirituality (separately) in predicting past year hazardous drinking, past year drug use, and past year depression (controlling for age, education, employment, partnership status, and children living in the home). For ease of interpretation, religiosity and spirituality were entered into the models as continuous variables, with higher numbers indicating higher levels. Third, we tested the interaction effects of race/ethnicity and religiosity and spirituality, when including internalized heterosexism and seeking help for an alcohol or drug problem respectively.

Findings

Demographics and differences in religiosity and spirituality.

Table 1 summarizes the distributions of demographic and key study variables. In response to the question about current religious preference, 42.3% of participants indicated no religious preference and 57.7% endorsed some form of religious preference (34.7% Protestant, 12.2% Catholic, 3.7% Jewish, and 7.0% other, such as Buddhist or Pagan). Participants reporting religious affiliation, but describing themselves as "not at all religious" were combined with participants who reported "no religion." Using this constructed variable, 51.7% of participants were classified as having no religious preference/not at all religious, whereas 34.8% indicated that they were somewhat religious, and 13.5% said they were very religious. In contrast, the distribution of responses to the question about how spiritual participants perceived themselves to be was skewed toward higher spirituality: not at all spiritual, 9.6%; somewhat spiritual, 42.9%; and very spiritual, 47.5%.

Table 2 summarizes levels of religiosity and spirituality by participant demographic characteristics. Religiosity and spirituality varied significantly by race/ethnicity ($p<.001$).

African-American/Black SMW were more likely to identify as somewhat or very religious than Latina and White SMW. Participants in the oldest (51+) age group were significantly more likely to identify as somewhat or very religious than those in 18-30 or 31-40 year age categories and were more likely to identify as very spiritual compared to 31-40 year olds. SMW with less education were significantly more likely to say they were somewhat religious compared to those with higher education (BA or post graduate degrees). SMW who had some college education were significantly more likely to say they were very spiritual compared to SMW with post graduate degrees. SMW with children living in the home were more likely to say they were somewhat or very religious compared to those without children living in the home.

Table 2 also summarizes the relationship between religiosity and spirituality and key outcome variables. Past year hazardous drinking was higher among participants who were not at all religious and among those who were not at all spiritual compared with participants who were very religious or very spiritual, respectively. Past year drug use and depression did not differ by religiosity or spirituality. Separate analyses for three types of drug use (marijuana use, non-medical use of prescription drugs, and use of illicit drugs) were conducted; none were significant and the dichotomous indicator of any drug use (vs. none) was used in subsequent analyses.

Relationship between Religiosity and Outcomes

In bivariate analyses, there was no effect of religiosity on drug use or depression and only one significant main effect of religiosity on hazardous drinking: women who reported being somewhat religious had significantly lower odds of hazardous drinking than women who were not religious, OR = .68 (95%CI [0.49, 0.96]), $p < .05$. However, when controlling for demographic variables (Table 3), religiosity was not statistically associated with any of the outcomes.

Differences by race/ethnicity. We examined the interactions between race/ethnicity and religiosity (as a continuous variable) predicting past year hazardous drinking, past year drug use, and past year depression controlling for demographic characteristics and internalized heterosexism. Only one significant interaction was found: African-American SMW who had higher levels of religiosity had elevated odds of hazardous drinking compared to white SMW AOR = 1.87 (95%CI [1.00, 3.49]), p =.05.

Follow-up analyses: Internalized heterosexism. Because internalized heterosexism or internalized stigma has been associated with religiosity in prior studies (Barnes & Meyer, 2012; Page et al., 2013), we re-ran our primary analyses and interaction analyses to examine whether internalized heterosexism would attenuate the relationship between religiosity and hazardous drinking among African-American SMW. Internalized heterosexism was significantly associated with religiosity (but not spirituality), in bivariate analysis: internalized heterosexism was significantly lower among participants reporting that religion was not at all important/no religious preference compared to participants who indicated that religion was somewhat important ($p<.01$) or very important ($p<.05$). However, internalized heterosexism was not significant in the multivariable logistic regression analyses.

Relationship between Spirituality and Outcomes

In bivariate analyses, there was a significant main effect of spirituality on hazardous drinking. Specifically, very spiritual SMW had significantly lower odds of hazardous drinking compared to SMW who reported that they were not at all spiritual, OR = .56 (95%CI [0.33, 0.97]), $p < .05$; however, this relationship was no longer significant in the model when controlling for demographic variables (Table 4). There was no significant relationship between spirituality and drug use in bivariate or multivariable regression models. There was a significant

relationship between spirituality and depression; participants who were very spiritual had greater odds of reporting depression compared to those who were not at all spiritual ($p = .05$).

Differences by race/ethnicity. There was only one significant interaction between race/ethnicity and spirituality (entered as a continuous variable in interaction models) in predicting the study outcomes when controlling for demographics. Latinas who reported higher levels of spirituality had higher odds of reporting drug use compared to white SMW, AOR = 1.97 (95%CI [1.08, 3.74]), $p < .05$.

Follow-up analyses: Help-seeking. We conducted follow-up analyses to determine whether having sought help for alcohol or drug problems in the past attenuated the relationship between identifying as very spiritual and increased odds of reporting depression (in multivariable regression analyses) or increased odds of reporting drug use (among Latinas in the interaction analysis). Our rationale for this was two-fold. First, as noted in the introduction, SMW are more likely than heterosexual women to seek help for substance use problems and mental health concerns. Second, endorsement of spirituality has been identified as important among individuals seeking help for alcohol and drug problems through formal treatment or self-help groups in both the general population and among SMW (Bliss, 2011; Hall, 1996; Walton-Moss, Ray, & Woodruff, 2013). Past help-seeking was reported by 9.9 % (n = 133) of participants and a majority of those who reported past help-seeking also reported being very spiritual (64.4%), which was significantly higher (44.0%, $p <.05$) than among participants who had never sought help. (There was no significant relationship between help-seeking and religiosity.) Not surprisingly, the odds for help-seeking were significantly associated with each of the outcome variables (hazardous drinking, AOR = 2.02, 95%CI [1.26, 3.24]), $p < .01$, drug use AOR = 1.69 (95%CI [1.10, 2.59]), $p < .05$), and depression (AOR = 2.30 (95%CI [1.50, 3.55]), $p < .001$).

The increased odds of reporting depression among participants who identified as very spiritual (reported in Table 4) was attenuated when help-seeking was added into the model ($p = .078$). However, the relationship between drug use and spirituality among Latinas remained significant, AOR = 1.96 (95%CI [1.3, 3.72]), $p < .05$.

Discussion

We found that SMW in the CHLEW study were more likely to endorse spirituality (rather than religiosity) as very or somewhat important. It is noteworthy that although a majority of participants (51.7%) identified as not at all religious, only a very small percentage (less than 9.6%) said they were not at all spiritual. This finding is consistent with other studies and suggests that spirituality is more salient than religiosity among SMW (Halkitis et al., 2009; Sherry, Adelman, Whilde, & Quick, 2010). We also found significant differences in endorsement of religiosity and spirituality by race and ethnicity; specifically, African-American SMW endorsed higher levels of both spirituality and religiosity than did White SMW.

In contrast to findings from a recent study of the protective effect of religiosity among SMW in the National Alcohol Survey (Drabble et al., 2016), we found no evidence of a protective effect for religiosity in relation to hazardous drinking, drug use, or depression in the full sample. The absence of a protective effect for religiosity among SMW has also been found in studies of young adults (Rostosky et al., 2007; Rostosky et al., 2010), and underscores the need for additional research about the role of religion and spirituality in health behaviors and mental health among diverse populations of SMW. Initially, we found that the odds of reporting depression among women who identified as "very spiritual" were nearly twice that of participants who identified as "not at all spiritual." However, this relationship lost significance in the follow-up analysis that added help-seeking for alcohol or other drug problems to the

model. Given that spirituality is often emphasized in self-help and recovery programs, those who seek treatment may become more spiritual that those who do not. Because the co-occurrence of depression and substance-use disorders is high among SMW (Bostwick, Hughes, & Johnson, 2005; Jeong et al., 2016), it is possible that participants with depression and substance use disorders may embrace spirituality in the process of help-seeking and recovery. It is also possible that individuals who identify as very spiritual may be more likely to seek help for problems. There is therefore a need for longitudinal research to identify the causal pathways in the associations among depression, spirituality and help-seeking.

This study found few differences by race/ethnicity in relation to hazardous drinking, drug use, or depression. Only the odds of reporting past year depression were significantly lower among African-American SMW compared to White SMW; there were no significant differences by race/ethnicity in hazardous drinking or drug use. Likewise, in previous longitudinal analyses of a large probability sample of young adults, heterosexual-identified women compared to men, and people of color compared to Whites, were less likely to report binge drinking in the previous two weeks. Religiosity was also protective for the heterosexual-identified young adults. However, in the sexual minority young adult group, being a person of color was protective against binge drinking, but being female or reporting higher religiosity was not (Rostosky, Danner, & Riggle, 2007; 2008). In a closer examination of within-group differences after accounting for the protective effect of being a person of color, religiosity was *not* protective against heavy episodic drinking (HED) in lesbian women and was associated with greater risk of HED in bisexual-identified women (Rostosky, Danner, & Riggle, 2010).

In the current study, analyses that focused on the potential protective role that religiosity and spirituality may play in hazardous drinking, drug use, and depression among women of color

revealed two significant interactions. First, the likelihood of hazardous drinking was higher among African-American women than White women with higher levels of religiosity (significant in models without internalized heterosexism and marginally significant when controlling for internalized heterosexism). We also found a significantly higher likelihood of drug use among Latina compared to White women with higher levels of spirituality. Together, these findings suggest that religiosity and spirituality may not provide the same protective effects for SMW of color that they do for women of color in the general population, and in fact may increase risk.

Possible associations between religiosity and risk of hazardous drinking or other health concerns among women of color are complex. Among African-American women, spirituality, but not religiosity, has been associated with higher levels of happiness (Battle & DeFreece, 2014). Exposure to homophobic messages within some religious institutions may decrease SMW's comfort with their sexual identity and increase internalized heterosexism and overall minority stress (Miller & Stack, 2013; Page et al., 2013; Walker & Longmire-Avital, 2013). At the same time, participation in church or other religious institutions may serve a strong community and resilience function as being a member of both religious and sexual minority communities may provide separate sources of support and meaning (Miller & Stack, 2013). Furthermore, dynamics of support or intolerance in religious contexts may also be complex; for example, at least one recent study found that individual moral views, but not Black Protestant church affiliation, predicted intolerant attitudes about civil rights of sexual minorities (Ledet, 2016).

Although there is very little research on religiosity/spirituality among Latina SMW, qualitative studies have stressed the role of religious messages (e.g., expectations related to heterosexuality, gender conformity, and motherhood) as a source of stress and conflict among

Latina lesbians (Reyes, 1998; Tuthill, 2016). Latina SMW who wish to retain connection to their family/community but who find the religious teachings of their church to be unsupportive of their sexual identity may define themselves as more spiritual than religious (Tuthill, 2016). One well-designed general population study found that spirituality was not protective for past year illicit drug use, and was positively associated with lifetime use of cocaine and injection drug use (Allen & Lo, 2010). The authors hypothesized that characteristics associated with spirituality (in contrast to religion) such as emphasis on self-actualization, individualism, and personal freedom may be predictive of drug use. Additional research with diverse samples of SMW is needed to better understand how spirituality, including dimensions of individualism and self-actualization, vary by ethnicity or other demographic characteristics and if these dimensions of spirituality relate to health behavior and mental health outcomes. Although one study found that disclosure of identity to nonfamily members (e.g., people at work or in community) was associated with less depression (Aranda et al., 2015), additional research is needed to explore possible relationships between religiosity/spirituality, disclosure, and drug use among Latina lesbians compared to other SMW.

Limitations

Several limitations should be considered when evaluating the results of this study. First, the sample was recruited using non-random methods, which limit generalizability. Second, because we used a cross-sectional design, causality and temporality could not be examined. Third, all measures relied on self-report, and thus responses may have been vulnerable to social desirability bias. Fourth, we had insufficient power to disaggregate participants who identified as Asian/Pacific Islander, Native American or a biracial or multiracial; these groups were combined in the analysis and therefore we were unable to explore possible differences among

these groups. Fifth, the study used a single-item measure of religiosity precluding a more comprehensive assessment of the potential protective role of religiosity. For example, we had no measure of actual involvement or attendance at religious institutions, how positively participants viewed religiosity/spirituality in their lives, or how participants perceived the influence of religiosity/spirituality in their lives and well-being. Future research should examine these factors in more detail to better understand the potential mechanisms linking religiosity and spirituality with health behavior. Finally, we did not assess the level of acceptance or rejection SMW participants may have experienced in the context of their religious/spiritual affiliations. Previous research has suggested that a religion's level of sexual minority affirmation may moderate the association between religious affiliation and psychological outcomes (Gattis et al., 2014), but additional research is needed to more fully understand mechanisms that may account for this finding.

Implications for Research and Practice

Our findings suggest that religiosity and spirituality are distinct constructs that may fulfill very different psychosocial needs for SMW. Traditionally, religiosity has been associated with institutional religion and relevant measures tend to focus on attendance and participation. Spirituality, on the other hand, is conceptualized as a more proximal, personal, and intrinsic source of meaning and purpose. In the current study, only a small percentage of women indicated that they were not at all spiritual. This finding is consistent with recent qualitative findings that many sexual minority individuals find positive ways to integrate their spiritual and sexual identities (Rosenkrantz, Rostosky, Riggle, & Cook, 2016). Future research on SMW's spirituality and health-related behaviors will benefit from the use of multi-dimensional measures

of spirituality that can be used to test theoretically-driven hypotheses about its possible function a source of support and resiliency.

Understanding the role of religiosity and spirituality in the lives of SMW of color is particularly important in light of the findings from this study. Variations in risk for hazardous drinking and drug use in analyses of interactions between race/ethnicity and religion and spirituality highlight the necessity of attending carefully to the complex intersections of identities when addressing problems related to substance use and abuse in research and practice. Practitioners, for instance, should inquire about the specifics of SMWs' religiosity and spirituality and the extent to which they serve as sources of positive purpose, meaning, and support, as well as whether they serve as sources of rejection, recrimination, guilt, and shame. In the current study, we were not able to determine the specific mechanisms by which aspects of religiosity and spirituality may be associated with increases or decreases in health risk behaviors such as substance use. Nevertheless, given the high endorsement of spirituality among SMW, practitioners might refer clients to positive sources of spiritual support in the community and online. These types of resources might be particularly welcome to SMW who have difficulty finding ways to cope effectively with minority stress resulting from internalized negative beliefs that are often reinforced by religiously-motivated rejection from family and religious community members (Rostosky, Riggle, Brodnicki, & Olson, 2008).

References

Aldwin, C. M., Park, C. L., Jeong, Y.-J., & Nath, R. (2014). Differing pathways between religiousness, spirituality, and health: A self-regulation perspective. *Psychology of Religion and Spirituality, 6*(1), 9-21.

Allen, T. M., & Lo, C. C. (2010). Religiosity, spirituality, and substance abuse. *Journal of Drug Issues, 40*(2), 433-459.

Anderton, C. L., Pender, D. A., & Asner-Self, K. K. (2011). A review of the religious identity/sexual orientation identity conflict literature: Revisiting Festinger's cognitive dissonance theory. *Journal of LGBT Issues in Counseling, 5*(3-4), 259-281.

Aranda, F., Matthews, A. K., Hughes, T. L., Muramatsu, N., Wilsnack, S. C., Johnson, T. P. (2015). Coming out in color: Racial/ethnic differences in the relationship between level of sexual identity disclosure and depression among lesbians. *Cultural diversity & ethnic minority psychology, 21*(2), 247-257. doi: 10.1037/a0037644

Balsam, K. F. (2003). Trauma, stress, and resilience among sexual minority women: Rising like the Phoenix. Journal of Lesbian Studies, 7(4), 1–8.

Balsam, K. F., Beauchaine, T. P., Mickey, R. M., & Rothblum, E. D. (2005). Mental health of lesbian, gay, bisexual and heterosexual siblings: Effects of gender, sexual orientation, and family. *Journal of Abnormal Psychology, 114*(3), 471-476.

Balsam, K. F., Molina, Y., Blayney, J. A., Dillworth, T., Zimmerman, L., & Kaysen, D. (2015). Racial/ethnic differences in identity and mental health outcomes among young sexual minority women. *Cultural Diversity and Ethnic Minority Psychology, 21*(3), 380-390.

Barnes, D. M., & Meyer, I. H. (2012). Religious affiliation, internalized homophobia, and mental health in lesbians, gay men, and bisexuals. *American Journal of Orthopsychiatry, 82*(4), 505-515.

Battle, J., & DeFreece, A. (2014). The impact of community involvement, religion, and spirituality on happiness and health among a national sample of black lesbians. *Women, Gender, and Families of Color, 2*(1), 1-31.

Bliss, D. L. (2011). Sexual orientation differences in spirituality in a sample of Alcoholics Anonymous members: Implications for practitioners. *Journal of Gay & Lesbian Social Services, 23*(3), 335-350.

Bonelli, R. M., & Koenig, H. G. (2013). Mental disorders, religion and spirituality 1990 to 2010: A systematic evidence-based review. *Journal of Religion and Health, 52*(2), 657-673.

Borders, T. F., Curran, G. M., Mattox, R., & Booth, B. M. (2010). Religiousness among at-risk drinkers: Is it prospectively associated with the development or maintenance of an alcohol-use disorder? *Journal of studies on alcohol and drugs, 71*(1), 136-142.

Bostwick, W. B., Boyd, C. J., Hughes, T. L., & McCabe, S. E. (2010). Dimensions of sexual orientation and the prevalence of mood and anxiety disorders in the United States. *American Journal of Public Health, 100*(3), 468-475.

Bostwick, W. B., Hughes, T. L., & Johnson, T. (2005). The co-occurrence of depression and alcohol dependence symptoms in a community sample of lesbians. [Article]. *Journal of Lesbian Studies, 9*(3), 7-18.

Chitwood, D. D., Weiss, M. L., & Leukefeld, C. G. (2008). A systematic review of recent literature on religiosity and substance use. *Journal of Drug Issues, 38*(3), 653-688.

Cochran, S. D., Mays, V. M., Ortega, A. N., Alegria, M., & Takeuchi, D. (2007). Mental health and substance abuse disorders among Latino and Asian American lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology, 75*(5), 785-794. doi: 10.1037/0022-006X.75.5.785

Condit, M., Kataji, K., Drabble, L., & Trocki, K. (2011). Sexual minority women and alcohol: Iintersections between drinking, relational contexts, stress and coping. Journal of Gay and Lesbian Social Services, 23(3), 351–375.

Dahl, A., & Galliher, R. (2010). Sexual minority young adult religiosity, sexual orientation conflict, self-esteem and depressive symptoms. *Journal of Gay & Lesbian Mental Health, 14*(4), 271-290.

Drabble, L., Midanik, L. T., & Trocki, K. F. (2005). Reports of alcohol consumption and alcohol-related problems among homosexual, bisexual and heterosexual respondents: Results from the 2000 National Alcohol Survey. *Journal of Studies on Alcohol, 66*, 111-120.

Drabble, L., Trocki, K. F., Hughes, T. L., Korcha, R. A., & Lown, A. E. (2013). Sexual orientation differences in the relationship between victimization and hazardous drinking among women in the National Alcohol Survey. *Psychology of addictive behaviors, 27*(3), 639-648.

Drabble, L., Trocki, K. F., & Klinger, J. L. (2016). Religiosity as a protective factor for hazardous drinking and drug use among sexual minority and heterosexual women: Findings from the National Alcohol Survey. *Drug and Alcohol Dependence, 161*, 127-134. doi: http://dx.doi.org/10.1016/j.drugalcdep.2016.01.022

Edlund, M. J., Harris, K. M., Koenig, H. G., Han, X., Sullivan, G., Mattox, R. (2010). Religiosity and decreased risk of substance use disorders: Is the effect mediated by social support or mental health status? *Social psychiatry and psychiatric epidemiology, 45*(8), 827-836.

Eliason, M. J., Burke, A., van Olphen, J., & Howell, R. (2011). Complex interactions of sexual identity, sex/gender, and religious/spiritual identity on substance use among college students. *Sexuality Research and Social Policy, 8*(2), 117-125.

Gattis, M. N., Woodford, M. R., & Han, Y. (2014). Discrimination and depressive symptoms among sexual minority youth: Is gay-affirming religious affiliation a protective factor? *Archives of sexual behavior*, 1-11. doi: DOI 10.1007/s10508-014-0342-y

Grella, C. E., Greenwell, L., Mays, V. M., & Cochran, S. D. (2009). Influence of gender, sexual orientation, and need on treatment utilization for substance use and mental disorders: Findings from the California Quality of Life Survey. BMC Psychiatry, 9, 52–61.

Haber, J. R., Grant, J. D., Jacob, T., Koenig, L. B., & Heath, A. (2012). Alcohol milestones, risk factors, and religion/spirituality in young adult women. *Journal of studies on alcohol and drugs, 73*(1), 34.

Halkitis, P. N., Mattis, J. S., Sahadath, J. K., Massie, D., Ladyzhenskaya, L., Pitrelli, K. (2009). The meanings and manifestations of religion and spirituality among lesbian, gay, bisexual, and transgender adults. *Journal of Adult Development, 16*(4), 250-262.

Hall, J. M. (1996). Lesbians' participation in Alcoholics Anonymous: experiences of social, personal, and political tensions. *Contemp. Drug Probs., 23*, 113-138.

Hasin, D. S., & Grant, B. F. (2015). The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) Waves 1 and 2: review and summary of findings. *Social psychiatry and psychiatric epidemiology, 50*(11), 1609-1640.

Herek, G. M., Cogan, J. C., Gillis, J. R., & Glunt, E. K. (1998). Correlates of internalized homophobia in a community sample of lesbians and gay men. *Journal-Gay and Lesbian Medical Association, 2*, 17-26.

Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology, 56*(1), 32.

Hughes, T. L., Matthews, A. K., Razzano, L., & Aranda, F. (2003). Psychological distress in African American lesbians and heterosexual women. Journal of Lesbian Studies, 7(1), 51– 68.

Hughes, T., Szalacha, L. A., & McNair, R. (2010). Substance abuse and mental health disparities: Comparisons across sexual identity groups in a national sample of young Australian Women. *Social Science & Medicine, 71*(4), 824-831.

Hughes, T. L., Johnson, T. P., Steffen, A. D., Wilsnack, S. C., & Everett, B. (2014). Lifetime victimization, hazardous drinking, and depression among heterosexual and sexual minority women. *LGBT Health, 1*(3), 192-203.

Hughes, T. L., Szalacha, L. A., Johnson, T. P., Kinnison, K. E., Wilsnack, S. C., & Cho, Y. (2010). Sexual victimization and hazardous drinking among heterosexual and sexual minority women. *Addictive Behaviors, 35*(12), 1152-1156. doi: 10.1016/j.addbeh.2010.07.004

Hughes, T. L., Wilsnack, S. C., & Kantor, L. (2016). The influence of gender and sexual orientation on alcohol use and alcohol-related problems: Toward a global perspective. *Alcohol Research: Current Reviews, 38*(1), 121-132.

Hughes, T. L., Wilsnack, S. C., Szalacha, L. A., Johnson, T., Bostwick, W. B., Seymour, R. (2006). Age and racial/ethnic differences in drinking and drinking-related problems in a community sample of lesbians. *Journal of Studies on Alcohol, 67*, 579-590.

Jeong, Y. M., Veldhuis, C. B., Aranda, F., & Hughes, T. L. (2016). Racial/ethnic differences in unmet needs for mental health and substance use treatment in a community-based sample of sexual minority women. *Journal of Clinical Nursing, 25*(23-24), 3557-3569. doi: http://doi.org/10.1111/jocn.13477

Jessup, M. A., & Dibble, S. L. (2012). Unmet mental health and substance abuse treatment needs of sexual minority elders. Journal of Homosexuality, 59(5),656–674.

Johnson, T. P., Hughes, T. L., Cho, Y. I., Wilsnack, S. C., Aranda, F., & Szalacha, L. A. (2013). Hazardous drinking, depression, and anxiety among sexual-minority women: Self-medication or impaired functioning? *Journal of studies on alcohol and drugs, 74*(4), 565.

Koenig, H., King, D., & Carson, V. B. (2012). *Handbook of religion and health*. New York: Oxford University Press.

Kwon, P. (2013). Resilience in lesbian, gay, and bisexual individuals. Personality and Social Psychology Review, 17(4), 371–383.

Ledet, R. (2016). Competing claims: Rethinking religious affiliation and African Americans' intolerance of homosexuals. *Journal of homosexuality*(published online), 1-18. doi: 10.1080/00918369.2016.1236580

Lewis, R. J., Mason, T. B., Winstead, B. A., Gaskins, M., & Irons, L. B. (2016). Pathways to hazardous drinking among racially and socioeconomically diverse lesbian women: Sexual minority stress, rumination, social isolation, and drinking to cope. *Psychology of Women Quarterly, 40*(4), 564-581. doi: https://doi.org/10.1177/0361684316662603

Martin, K. R., Johnson, T. P., & Hughes, T. L. (2015). Using respondent driven sampling to recruit sexual minority women. *Survey Practice, 8*(2). Retrieved from http://surveypractice.org/index.php/SurveyPractice/article/view/273/html_23

Matthews, A., Li, C.-C., Aranda, F., Torres, L., Vargas, M., & Conrad, M. (2014). The influence of acculturation on substance use behaviors among Latina sexual minority women: The mediating role of discrimination. *Substance Use & Misuse, 49*(14), 1888-1898. doi: 10.3109/10826084.2014.913632

Matthews, A. K., Cho, Y. I., Hughes, T., Wilsnack, S. C., Johnson, T., & Martin, K. (2013). The relationships of sexual identity, hazardous drinking, and drinking expectancies with risky sexual behaviors in a community sample of lesbian and bisexual women. *Journal of the American Psychiatric Nurses Association, 19*(5), 259-270.

Matthews, A. K., Hughes, T. L., Johnson, T., Razzano, L. A., & Cassidy, R. (2002). Prediction of depressive distress in a community sample of women: The role of sexual orientation. [Article]. *American Journal of Public Health, 92*(7), 1130-1139.

Mays, V. M., Cochran, S. D., & Roeder, M. R. (2004). Depressive distress and prevalence and common problems among homosexually active women in the United States. *Journal of Psychology & Human Sexuality, 15*(2/3), 27-46.

McCabe, S. E., Hughes, T. L., Bostwick, W., Morales, M., & Boyd, C. J. (2012). Measurement of sexual identity in surveys: Implications for substance abuse research. *Archives of sexual behavior, 41*(3), 649-657.

McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors and substance dependence in the United States. [Article]. *Addiction, 104*(8), 1333-1345. doi: 10.1111/j.1360-0443.2009.02596.x

Mereish, E. H., & Bradford, J. B. (2014). Intersecting identities and substance use problems: Sexual orientation, gender, race, and lifetime substance use problems. *Journal of Studies on Alcohol and Drugs, 75*(1), 179-188.

Michalak, L., Trocki, K., & Bond, J. (2007). Religion and alcohol in the US National Alcohol Survey: How important is religion for abstention and drinking? *Drug and alcohol dependence, 87*(2), 268-280.

Midanik, L., & Greenfield, T. (2000). Trends in social consequences and dependence symptoms in the United States: The National Alcohol Surveys, 1984-1995. *American Journal of Public Health, 90*(1), 53-56.

Miller, S. J., & Stack, K. (2013). African-American lesbian and queer women respond to Christian-based homophobia. *Journal of GLBT Family Studies, 10*(3), 243-268. doi: 10.1080/1550428X.2013.825219

Mukaka, M. (2012). A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal, 24*(3), 69-71.

Page, M. J., Lindahl, K. M., & Malik, N. M. (2013). The role of religion and stress in sexual identity and mental health among lesbian, gay, and bisexual youth. *Journal of Research on Adolescence, 23*(4), 665-677. doi: 10.1111/jora.12025

Ream, G. L., & Savin-Williams, R. C. (2005). Reconciling Christianity and positive non-heterosexual identity in adolescence, with implications for psychological well-being. *Journal of Gay & Lesbian Issues in Education, 2*(3), 19-36.

Reyes, M. (1998). Latina lesbians and alcohol and other drugs: Social work implications. *Alcoholism Treatment Quarterly, 16*(1/2), 179-192.

Riley, B. B., Hughes, T. L., Wilsnack, S. C., Johnson, T. P., Benson, P., & Aranda, F. (2017). Validating a hazardous drinking index in a sample of sexual minority women: reliability, validity, and predictive accuracy. *Substance Use & Misuse, 52*(1), 43-51.

Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. *Archives of General Psychiatry, 38*, 381-389.

Rosenkrantz, D. E., Rostosky, S. S., Riggle, E. D. B., & Cook, J. R. (2016). The positive aspects of intersecting religious/spiritual and LGBTQ identities. *Spirituality in Clinical Practice, 3*(2), 127-138. doi: doi:10.1037/scp0000095

Rostosky, S. S., Danner, F., & Riggle, E. D. (2008). Religiosity and alcohol use in sexual minority and heterosexual youth and young adults. *Journal of Youth and Adolescence, 37*(5), 552-563.

Rostosky, S. S., Danner, F., & Riggle, E. D. B. (2007). Is religiosity a protective factor against substance use in young adulthood? Only if you're straight! *Journal of Adolescent Health, 40*, 400-447.

Rostosky, S. S., Danner, F., & Riggle, E. D. B. (2010). Religiosity as a protective factor against heavy episodic drinking (HED) in heterosexual, bisexual, gay, and lesbian young adults. *Journal of Homosexuality, 57*(8), 1039-1050.

Rostosky, S. S., Riggle, E. D. B., Brodnicki, C., & Olson, A. (2008). An exploration of lived religion in same-sex couples from Judeo-Christian traditions. *Family Process, 47*(3), 389-403. doi: 10.1111/j.1545-5300.2008.00260.x

Sherkat, D. E. (2002). Sexuality and religious commitment in the United States: An empirical examination. *Journal for the Scientific Study of Religion, 41*(2), 313-323.

Sherry, A., Adelman, A., Whilde, M. R., & Quick, D. (2010). Competing selves: Negotiating the intersection of spiritual and sexual identities. *Professional Psychology: Research and Practice, 41*(2), 112.

Skrocki, F. E. (1996). *Use of focus groups to validate an existing instrument for use with lesbians.* ([unpublished master's thesis]), University of Illinois at Chicago, Chicago.

Trocki, K. F., Drabble, L. A., & Midanik, L. T. (2009). Tobacco, marijuana use and sensation-seeking: Comparisons across gay, lesbian, bisexual, and heterosexual groups. *Psychology of Addictive Behaviors, 23*(4), 620-631.

Tuthill, Z. (2016). Negotiating religiosity and sexual identity among Hispanic lesbian mothers. *Journal of homosexuality, 63*(9), 1194 -1210. doi: 10.1080/00918369.2016.1151691

Walker, J. N. J., & Longmire-Avital, B. (2013). The impact of religious faith and internalized homonegativity on resiliency for black lesbian, gay, and bisexual emerging adults. *Developmental psychology, 49*(9), 1723-1731.

Walton-Moss, B., Ray, E. M., & Woodruff, K. (2013). Relationship of spirituality or religion to recovery from substance abuse: A systematic review. *Journal of addictions nursing, 24*(4), 217-226.

Wilsnack, R. W., Kristjanson, A. F., Wilsnack, S. C., & Crosby, R. D. (2006). Are US women drinking less (or more)? Historical and aging trends, 1981-2001. *Journal of studies on alcohol, 67*(3), 341-348.

Wilsnack, R. W., Wilsnack, S. C., & Klassen, A. D. (1984). Women's drinking and drinking problems: Patterns from a 1981 national survey. *American journal of public health, 74*(11), 1231-1238.

Wilsnack, S. C., Hughes, T. L., Johnson, T. P., Bostwick, W. B., Szalacha, L. A., Benson, P. (2008). Drinking and drinking-related problems among heterosexual and sexual minority women. *Journal of Studies on Alcohol and Drugs, 69*, 129-139.

Wood, A. W., & Conley, A. H. (2014). Loss of religious or spiritual identities among the LGBT population. Counseling and Values, 59(1), 95–111. doi: 10.1002/j.2161-007X.2014.00044.x

Zapolski, T. C. B., Pedersen, S. L., McCarthy, D. M., & Smith, G. T. (2014). Less drinking, yet more problems: Understanding African American drinking and related problems. *Psychological Bulletin, 140*(1), 188-223. doi: 10.1037/a0032113

Table 1: Sample Demographics, Religiosity, Spirituality, and Outcome Variables (N = 699)

	Percent (n)
Religiosity	
Very religious	13.5 (94)
Somewhat religious	34.8 (242)
No preference/not at all religious	51.7 (360)
Spirituality	
Very spiritual	47.5 (332)
Somewhat spiritual	42.9 (300)
Not at all spiritual	9.6 (67)
Sexual identity	
Lesbian	74.0 (517)
Bisexual	26.0 (182)
Age	
18-30	32.2 (225)
31-40	21.3 (149)
41-50	20.2 (141)
50 and over	26.3 (184)
Race/Ethnicity	
White	37.3 (261)
African American	36.1 (252)
Latina	23.2 (162)
Other	3.4 (24)
Relationship status	
Partnered	60.9 (424)
Not partnered	39.1 (272)
Education	
High school or less	20.5 (143)
Some college	31.0 (217)
College graduate	21.0 (147)
Post graduate	27.5 (192)
Employment status	
Employed	67.6 (472)
Not employed	32.4 (226)
Any children living with participant	20.2 (141)
Hazardous drinking index (2+)	43.9 (297)
Past year drug use	42.2 (295)
Past year depressive episode	30.3 (212)
Internalized heterosexism (Scale 1-5), Mean (sd)	1.47 (0.54)

Table 2: Religiosity and Spirituality by Demographics and Outcome Variables (N = 699)

	Very Religious	Somewhat Religious	Not Religious/ No Preference		Very Spiritual	Somewhat Spiritual	Not at all Spiritual	
DEMOGRAPHICS	% (n)	% (n)	% (n)	*p* value	% (n)	% (n)	% (n)	*p* value
Sexual Identity								
Lesbian	13.6 (70)	36.1 (186)	50.3 (259)	.401	49.3 (255)	42.4 (219)	8.3 (43)	.088
Bisexual	13.3 (24)	30.9 (56)	55.8 (101)		42.3 (78)	44.5 (81)	13.2 (24)	
Age								
18-30	8.9 (20)	28.9 (65)	62.2 (140)	<.001	39.6 (90)	49.8 (112)	10.7(24)	.006
31-40	11.4 (17)	31.5 (47)	57.0 (85)		43.6 (65)	42.3 (63)	14.1 (21)	
41-50	17.3 (24)	41.0 (57)	41.7 (58)		56.7 (80)	38.3 (54)	5.0 (7)	
51+	18.0 (33)	39.9 (73)	42.1 (77)		53.5 (98)	38.6 (71)	8.2 (15)	
Ethnicity								
White	10.0 (26)	26.4 (69)	63.6 (166)	<.001	38.3 (100)	47.5 (124)	14.2 (37)	<.001
African-American	18.1 (45)	46.6 (116)	35.3 (88)		59.5 (150)	36.1 (91)	4.4 (11)	
Latina	10.5 (17)	33.3 (54)	56.2 (91)		43.2 (70)	45.7 (74)	11.1 (18)	
Other	25.0 (6)	12.5 (3)	62.5 (15)		50.0 (12)	45.8 (11)	4.2 (1)	
Relationship Status								
Partnered	14.7 (62)	35.7 (151)	49.6 (211)	.289	46.0 (196)	44.3 (188)	9.7 (41)	.641
Not partnered	11.5 (31)	33.3 (90)	55.2 (149)		49.6 (135)	41.2 (112)	9.2 (25)	
Employment								
Employed	13.2 (62)	32.7 (154)	54.1 (255)	.151	45.6 (215)	44.1 (208)	10.4 (49)	.300
Not employed	14.3 (32)	39.3 (88)	46.4 (104)		51.3 (116)	40.7 (92)	8.0 (18)	
Education								
HS or Less	15.5 (22)	51.4 (73)	33.1 (47)	<.001	46.9 (67)	44.8 (64)	8.4 (12)	.264
Some college	10.6 (23)	37.5 (81)	51.9 (112)		53.9(117)	39.2 (85)	6.9 (15)	
Bachelor's degree	14.4 (21)	20.5 (30)	65.1 (95)		42.9 (63)	45.6 (67)	11.6 (17)	
Graduate school	14.6 (28)	30.2 (58)	55.2 (106)		44.3 (85)	43.8 (84)	12.0 (23)	
Children at home								
Children at home	18.6 (26)	43.6 (61)	37.9 (53)	.001	52.5 (74)	42.6 (60)	5.0 (7)	.086
No children at home	12.2 (68)	32.6 (181)	55.2 (307)		46.1 (257)	43.1 (240)	10.8 (60)	
OUTCOMES	% (n)	% (n)	% (n)	*p* value	% (n)	% (n)	% (n)	*p* value

Hazardous Drinking (Past yr)								
2+ Indicators	11.8 (35)	30.7 (91)	57.4 (170)	.048	40.4 (120)	47.8 (142)	11.8 (35)	.014
0-1 Indicators	14.6 (55)	37.6 (142)	47.9 (181)		51.5 (195)	40.1 (152)	8.4 (32)	
Drug Use (Past yr)								
Any drug use	11.2 (33)	33.2 (98)	55.6 (166)	.144	45.4 (134)	44.4 (131)	10.2 (30)	.635
No drug use	64.9 (61)	35.9 (144)	48.9 (196)		49.0 (198)	41.8 (169)	9.2 (37)	
Depression (Past yr)								
One or more	12.8 (27)	37.4 (79)	49.8 (105)	.662	49.1 (104)	43.9 (93)	7.1 (15)	.287
No episode	14.4 (67)	34.0 (161)	51.9 (246)		46.4 (221)	42.6 (203)	10.9 (52)	

Table 3: Multivariable logistic regression predictors for religion and past year hazardous drinking, drug use, and depression symptoms

	Hazardous Drinking Adj OR (95% CI)	**Drug Use** Adj OR (95% CI)	**Depression** Adj OR (95% CI)
Religiosity			
No preference/not religious [1]			
Somewhat religious	0.75 (0.50, 1.12)	0.93 (0.64, 1.35)	1.25 (0.85, 1.85)
Very religious	1.04 (0.60, 1.80)	0.83 (0.49, 1.40)	1.17 (0.69, 2.00)
Race/Ethnicity			
White [1]			
African-American	0.92 (0.57, 1.46)	1.08 (0.69, 1.96)	0.49 (0.30, 0.77) **
Latina	1.00 (0.63, 1.60)	0.81 (0.52, 1.27)	0.74 (0.46, 1.18)
Other	0.37 (0.12, 1.15)	1.55 (0.62, 3.89)	1.64 (0.66, 4.07)
Age			
51+ [1]			
41-50	1.94 (1.03, 3.19) *	1.16 (0.65, 1.82)	1.12 (0.66, 1.92)
31-40	4.09 (2.39, 7.00) ***	2.29 (1.41, 3.73) **	1.18 (0.70, 2.00)
18-30	10.37 (6.14, 17.52) ***	4.13 (2.60, 6.56) ***	1.53 (0.95, 2.47)
Employment			
Employed [1]			
Not employed	0.58 (0.38, 0.89) *	0.98 (0.67, 1.43)	1.11 (0.75, 1.64)
Education			
High school/less [1]			
Some college	0.54 (0.32, 0.90) *	0.84 (0.53, 1.34)	1.02 (0.63, 1.64)
Bachelor's degree	0.35 (0.19, 0.66) **	0.78 (0.45, 1.36)	0.55 (0.30, .99) *
Graduate school	0.39 (0.21, 0.72) **	0.44 (0.25, 0.78) *	0.44 (0.24, 0.80) **

[1] Reference group

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Note: Demographic variables not significant across multivariable logistic regression analyses are excluded from table: Relationship status, children living in the home

Table 4: Multivariable logistic regression predictors for spirituality and past year hazardous drinking, drug use, and depression symptoms

	Hazardous Drinking Adj OR (95% CI)	**Drug Use** Adj OR (95% CI)	**Depression** Adj OR (95% CI)
Spirituality			
Not spiritual [1]			
Somewhat spiritual	0.86 (0.47, 1.58)	0.94 (0.53, 1.67)	1.77 (0.92, 3.41)
Very spiritual	0.65 (0.35, 1.21)	0.94 (0.53, 1.68)	1.94 (1.00, 3.77) *
Race/Ethnicity			
White [1]			
African-American	0.96 (0.60, 1.452)	1.05 (0.68, 1.62)	0.47 (0.29, 0.74) **
Latina	1.02 (0.64, 1.63)	0.81 (0.52, 1.26)	0.73 (0.46, 1.16)
Other	0.39(0.13, 1.22)	1.53 (0.61, 3.84)	1.54 (0.63, 3.81)
Age			
51+ [1]			
41-50	2.00 (1.13, 3.54) *	1.15 (0.68, 1.93)	1.07 (0.63, 1.84)
31-40	4.02 (2.35, 6.88) ***	2.34 (1.43, 3.79) **	1.19 (0.71, 2.00)
18-30	10.32 (6.13, 17.35) ***	4.24 (2.68, 6.70) ***	1.51 (0.94, 2.41)
Employment			
Employed [1]			
Not employed	0.59 (0.39, 0.90) **	0.96 (0.65, 1.40)	1.11 (0.75, 1.64)
Education			
High school/less [1]			
Some college	0.59 (0.35, 0.99) *	0.85 (0.53, 1.35)	0.96 (0.60, 1.54)
Bachelor's degree	0.40 (0.21, 0.73) **	0.79 (0.45, 1.36)	0.51 (0.28, 0.92) *
Graduate school	0.43 (0.23, 0.78) **	0.46 (0.26, 0.80) **	0.42 (0.23, 0.76) **

[1] Reference group

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Note: Demographic variables not significant across multivariable logistic regression analyses are excluded from table: Relationship status, children living in the home