



The associations between subdimensions of religiosity and illicit substance use among latino sexual minority men



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HIGHLIGHTS

- Different dimensions of religiosity are associated with substance use differently.
- Private religious activity is associated with increased substance use in this study.
- Latino sexual minority men in this sample had high levels of substance use.

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ABSTRACT

Background: Latino sexual minority men (SMM) may be a group disproportionately at risk for substance use than heterosexual Latino men and non-Latino SMM. As religiosity may be a culturally relevant factor, the current study aimed to explore the association of three subcomponents of religiosity: organizational religious activity (ORA; i.e., public religious activity), non-organizational religious activity (NORA; i.e., private religious activity), and intrinsic religiosity (IR; i.e., personal commitment to one's religion) in predicting illicit substance use.

Method: Participants were 151 Latino SMM recruited from San Diego County ($M = 24.18$ years of age, $SD = 3.19$), who completed online self-report questionnaires in English or Spanish. Binary outcome variables represented use of illicit substances in the past month vs. no use. Religiosity was assessed using the three subscales (ORA, NORA, and IR) of the Duke University Religion Index (DUREL). Acculturation was controlled for using the Bidimensional Acculturation Scale for Hispanics.

Results: ORA was associated with opiates ($OR = 1.53, p = .04$). NORA was associated with cocaine ($OR = 1.69, p = .01$), opiates ($OR = 1.56, p = .04$), amphetamines ($OR = 1.67, p = .02$), and sedatives ($OR = 2.33, p = .001$). IR was associated with amphetamines ($OR = 1.34, p = .03$).

Conclusion: NORA is positively associated with multiple illicit substances, and may represent greater internalization of anti-gay religious doctrines compared to other components of religiosity in Latino SMM. An inter-sectional approach addressing religious and sexual minority identity may be useful in substance use treatment for Latino SMM.

1. Introduction

Latinos are the fastest growing ethnic group in the United States (Census Bureau, 2010); however, scant research has examined culturally-relevant protective factors for substance use among Latino sexual minority (e.g., gay and bisexual) men. Sexual minority men (SMM) are at an increased risk for substance use in comparison to their heterosexual peers (Centers for Disease Control [CDC], 2016; Kerridge et al., 2017; Plöderl & Tremblay, 2015). Examination of the data collected through the CDC's Youth Risk Behavior Surveillance System (2015)

found young Latino SMM report the highest lifetime prevalence rates of binge drinking (30.3%), cocaine use (20.5%), methamphetamine use (13.8%), and heroin use (15.6%) compared to Latino and White heterosexual and sexual minority (SM) males. The high rate of substance use among Latino SMM suggests the possibility of unique risk factors in this population (CDC, 2015).

Religiosity may be theoretically important to consider in examining Latino SMM substance use. Religiosity may serve as a protective factor due to many religions' promotion of abstinence from alcohol and other drugs (Rostosky, Danner, & Riggle, 2010). Catholicism may serve as a

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buffer to U.S. acculturation in comparison to other religious affiliations, therefore decreasing the probability of substance use among Latinos (Calvillo & Bailey, 2015; Myers et al., 2009; Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Although 16.3% of U.S. citizens identify as Hispanic or Latino, Latino Americans comprise 32% of Catholics in the U.S. (Census Bureau, 2010; Pew Research Center [PRC], 2014). For heterosexuals, including Latino heterosexuals, religiosity is considered a protective factor for substance use (Drabble, Trocki, & Klinger, 2016; Escobar & Vaughan, 2014; Rostosky et al., 2010; Rostosky, Danner, & Riggle, 2007). Therefore, it would be beneficial to examine religiosity among Latino SMM due to high prevalence among Latinos (82% report being religiously affiliated; PRC, 2014; Rostosky et al., 2010). However, it is also possible religiosity may exacerbate substance use in SMM due to religious doctrines condemning same-sex relationships (Hequembourg & Dearing, 2013; PRC, 2014; Rostosky et al., 2007). One study found when comparing Latino and Black lesbian, gay, and bisexual (LGB) individuals with White LGB individuals, the Latino group had the highest levels of internalized homophobia, mediated by their increased exposure to non-affirming religious settings (Barnes & Meyer, 2012). Qualitative research of Latino sexual and gender minority men raised as Catholics also indicates many Latino men may experience conflict due to their religious and sexual or gender identities in adolescence (García, Gray-Stanley, & Ramirez-Valles, 2008). Thus, the association between religiosity and substance use among SMM remains unclear.

The effect of religiosity on substance use/SUDs in SMM may be dependent on the dimension used to measure religiosity (Drabble et al., 2016; Rostosky et al., 2007; Rostosky et al., 2010). Religiosity is a multidimensional construct with factors interacting with health outcomes differentially depending on what aspects are analyzed, such as frequency of religious attendance, private religious practice, and intrinsic/extrinsic religious motivation (Escobar & Vaughan, 2014; Hall, Meador, & Koenig, 2008). When religiosity was measured using a tripartite model as a composite of religious attendance, importance of religion, and other religious activities, religiosity was not protective against binge drinking, marijuana use, and cigarette smoking, but was protective for heavy episodic drinking (HED) among both heterosexual and gay men (Rostosky et al., 2007; Rostosky et al., 2010). However, results from a previous study of religiosity in a sample of young Black men who have sex with men (an ethnic group for which religiosity also tends to be a salient construct) found various dimensions of spirituality were associated with outcomes of substance use and HIV in various ways (Carrico et al., 2017). Due to these mixed results, religiosity should likely not be treated as a uniform construct when examining its effects on substance use among Latino SMM.

1.1. The Current Study

The current study seeks to build upon existing literature by measuring separate dimensions of religiosity versus a single construct. When analyzing common measures of religiosity, Hall et al. (2008) suggest the complex nature of religiosity requires the use of measures analyzing specific dimensions; measures analyzing religiosity void of a specific context should be abandoned. The Duke University Religion Index (DUREL) is frequently used for its brevity (5 items) and its ability to assess three major dimensions of religiosity: organizational religious activity (ORA; e.g., attending church or a service), non-organizational religious activity (NORA; e.g., praying by oneself, meditation, study of religious scripture), and intrinsic religiosity (IR; i.e., subjective religiosity; Koenig, Meador, & Parkerson, 1997; Koenig & Büssing, 2010). The current study will use the three dimensions of the DUREL to examine how religiosity may predict substance use among Latino SMM. It is hypothesized ORA and NORA would be associated with increased substance use, as both of these subdimensions of religiosity imply an involvement with one's religious doctrine and community. The IR dimension is hypothesized to be associated with decreased substance use,

as IR is similar to religious importance, and a previous study found this to be a protective factor in alcohol use among SM women (Drabble et al., 2016).

2. Material and Methods

2.1. Participants and procedures

Participants were 151 Latino SM men recruited from San Diego County, between the ages of 18–29 ($M = 24.18$ years of age, $SD = 3.19$). Participants were recruited through paid advertisements on several hook-up sites, such as Grindr, and Squirr.org. Additionally, participants who participated in past research and expressed interest in future studies were emailed links to the survey. Surveys took approximately 30 minutes and were available in both English and Spanish. The Spanish version of the survey included some measures previously validated in Spanish (e.g., the Bidimensional Acculturation Scale). Measures that did not have Spanish versions previously developed were translated by a Spanish speaking professor in Puerto Rico with some assistance from an undergraduate research assistant where the study was conducted (e.g., demographic information). The measures translated by the study team were then pilot tested among two Latino SMM who met eligibility criteria for the study to ensure the linguistic and cultural appropriateness of the measure for Spanish-speaking Latino SMM. Participants were included in the study if they met the following criteria as indicated based on responses to items assessing eligibility: (a) ages 18–29, (b) identifies as both Latino/Hispanic and male, (c) identifies as either a Spanish or English speaker, (d) lives in San Diego County, (e) identifies as a gay/bisexual male or reported same sex attraction, and (f) self-reports HIV-uninfected status. Participants consented to participate and all procedures were approved by the university's Institutional Review Board. Individuals who met criteria for the study and completed the questionnaire received a \$10 Amazon gift card upon completion.

2.2. Measures

2.2.1. Religiosity

Religiosity was assessed using the three subscales of the Duke University Religion Index: organizational religious activity (ORA; i.e., public religious activity), non-organizational activity (NORA; i.e., private religious activity), and intrinsic religiosity (IR; i.e., degree of personal commitment to one's religion; DUREL, Koenig & Büssing, 2010). The DUREL reflects consensus in the field that religiosity is a multidimensional construct consisting of several domains encompassing one's religious experience (Hall et al., 2008). ORA was assessed with the item: "How often do you attend church or other religious meetings?". Responses ranged from 1 = *Never* to 6 = *More than once/week*. NORA was assessed with the item: "How often do you spend time in private religious activities, such as prayer, meditation or Bible study?". Responses ranged from 1 = *Rarely or never* to 6 = *More than once a day*. IR was assessed using the three items: "In my life, I experience the presence of the Divine (i.e., God)", "My religious beliefs are what really lie behind my whole approach to life", and "I try hard to carry my religion over into all other dealings in life". Responses were measured on a 5-Point Likert scale (e.g., 1 = *Definitely not true* and 5 = *Definitely true to me*). The three IR items were summed to create a scale score, possible scores ranged from 3 to 15. This scale has shown to be valid, reliable, and reflects the multidimensional nature of the construct of religiosity (Koenig & Büssing, 2010). The internal consistency for the IR subscale was adequate ($\alpha = 0.73$).

2.2.2. Illicit substance use

Illicit substance use was assessed using the following items: "Please select the answer that most accurately describes your drug use in the past month" for marijuana (Marijuana, Hash, Cannabis); cocaine;

heroin; opiates (Codeine, Vicodin, Percocet, Oxycontin); amphetamines; hallucinogens (LSD, Acid, Ecstasy, Mushrooms, etc.); sedatives/tranquilizers (Valium, Xanax, etc.); and steroids (Anabolic steroids, testosterone, etc.). Multiple items were used to assess cocaine (smoking, intra-nasal, and injecting), heroin (smoking, intra-nasal, and injecting), and amphetamine use (crystal meth versus other types of amphetamines). All items had response items ranging from 1 = *No use* to 5 = *About every day*. Dichotomous variables were created for each drug type; 0 = *no drug use* vs. 1 = *drug use in the past month, as any use of an illicit substance, especially in the past month, can be reflective of public health concern*. For illicit substances where more than one item assessed use, responses were combined to create a single variable (e.g., all 3 cocaine items were combined to assess any type of cocaine use; reported use on any of the three items was scored as a “1” in the binary variable).

2.2.3. Acculturation

Acculturation is associated with substance use in Latino populations (Myers et al., 2009; Unger, Schwartz, Huh, Soto, & Baezconde-Garbanati, 2014). Therefore, acculturation was treated as a covariate in all models. Acculturation was assessed using the Bidimensional Acculturation Scale (BAS) for Hispanics (Marin & Gamba, 1996). The BAS is a 24-item scale administered in English and Spanish measuring two domains of Hispanic and non-Hispanic acculturation. Two scores were created, the average of the 12 items associated with the Hispanic domain and the average of the 12 items associated with the non-Hispanic domain. This scale has demonstrated strong reliability and validity (Marin & Gamba, 1996). The internal consistency in the present study was strong for the non-Hispanic subscale $\alpha = 0.91$, and $\alpha = 0.85$ for the Hispanic subscale.

2.3. Planned analysis

Associations between the three subdimensions of religiosity (ORA, NORA, and IR) and illicit substance use were examined in a series of logistic regression models with binary variables reflecting no use versus use at least once or more for marijuana, cocaine, heroin, opiates, amphetamines, hallucinogens, sedatives/tranquilizers, and steroids as the outcomes. The three subscales of the DUREL were entered into each model simultaneously as the independent variables. Each model also included the two subscales of the BAS (Hispanic and non-Hispanic acculturation) as covariates. Overall model fit and Nagelkerke Pseudo R^2 are reported for each model. Odds ratios, standard errors, and 95% C.I.s are reported for specific parameters of each logistic regression model.

3. Results

The entire sample of 151 Latino SMM identified as Hispanic/Latino with a mean age of 24.18 years ($SD = 3.19$). The sample was predominantly Hispanic White (55%), but participants were also African American (26.5%), Other (11.3%), Native American or American Indian (4%), and Asian/Pacific Islander (2.6%). Overall, the sample reported relatively high levels of illicit substance use at least once or more in the past month: marijuana (41.1%), cocaine (50.3%), heroin (39.1%), opiate (33.1%), amphetamines (32.5%), hallucinogens (26.5%), sedatives/tranquilizers (25.2%), steroids (17.9%). See Table 1 for additional demographics.

The model fit the data well for cocaine ($\chi^2_{(5)} = 55.21, p < .001, R^2 = 0.42$), heroin ($\chi^2_{(5)} = 64.59, p < .001, R^2 = 0.48$), opiate ($\chi^2_{(5)} = 46.38, p < .001, R^2 = 0.39$), amphetamine ($\chi^2_{(5)} = 52.914, p < .001, R^2 = 0.42$), hallucinogen ($\chi^2_{(5)} = 14.11, p = .015, R^2 = 0.14$), sedative/tranquilizer ($\chi^2_{(5)} = 34.49, p < .001, R^2 = 0.32$), and steroid use ($\chi^2_{(5)} = 20.44, p = .001, R^2 = 0.22$), but not marijuana use ($\chi^2_{(5)} = 6.01, p = .31, R^2 = 0.06$). ORA was significantly associated with increased opiate use ($OR = 1.53, SE = 0.20, 95\% CI [1.03, 2.27], p = .04$). NORA was significantly associated with increased cocaine use

Table 1
Sample characteristics

Variable	N (%)
Substance use	
Marijuana	62 (41.1%)
Cocaine	76 (50.3%)
Heroin	59 (39.1%)
Opiates	50 (33.1%)
Amphetamines	49 (32.5%)
Hallucinogens	40 (26.5%)
Sedatives/Tranqs	38 (25.2%)
Steroids	27 (17.9%)
Race	
White	83 (55%)
African American	40 (26.5%)
Native American/ American Indian	6 (4%)
Asian/Pacific Islander	4 (2.6%)
Other	17 (11.3%)
M (SD)	
ORA	2.91 (1.36)
NORA	2.66 (1.31)
IR	7.63 (3.00)
BAS Hispanic	2.46 (0.56)
BAS Non-Hispanic	2.82 (0.73)
Age	24.18 (3.19)

Note: N = number of participants, M = mean, SD = standard deviation, Substance Use reflects use of at least once in the past month, ORA scaled “1 = Never” to “6 = More than once a week,” NORA scaled “1 = Rarely or never” to “6 = More than once a day,” IR scaled 3 to 15, BAS Hispanic scaled 1 to 4, BAS Non-Hispanic scaled 1 to 4.

($OR = 1.69, SE = 0.20, 95\% CI [1.14, 2.52], p = .01$), opiate use ($OR = 1.56, SE = 0.21, 95\% CI [1.03, 2.35], p = .04$), amphetamine use ($OR = 1.67, SE = 0.22, 95\% CI [1.08, 2.56], p = .02$), and sedative/tranquilizers use ($OR = 2.33, SE = 0.24, 95\% CI [1.45, 3.76], p = .001$). IR was significantly associated with increased amphetamine use ($OR = 1.34, SE = 0.14, 95\% CI [1.03, 1.74], p = .03$). See Table 2 for all parameter estimates of significant overall models.

4. Discussion

This was the first known study to examine the association between subdimensions of religiosity and illicit substance use in a sample of Latino SMM. Results highlight the importance of treating religiosity as a multidimensional construct in health research. Religion may have varied associations with health outcomes in populations where religion is more culturally salient. An important strength of this study was all significant associations between various DUREL subscales and the outcome variables were found while controlling for the other aspects of religiosity assessed, all subscales were entered into the models simultaneously. All models fit the data well, except for the model with marijuana use as the outcome. Results indicated ORA was significantly associated with increased opiate use; NORA was significantly associated with increased cocaine, opiate, amphetamine, and sedative/tranquilizer use; and IR was significantly associated with increased amphetamine use. Results somewhat supported the hypothesis ORA and NORA would be significantly associated with increased illicit substance use. The trend across the models showed out of the seven significant overall models, NORA was associated with increased use of four of the illicit substances. However, ORA was not significantly associated with increased use of multiple illicit substances. Additionally, the results did not support the hypothesis IR would be significantly associated with decreased use of multiple illicit substances.

Contrary to hypotheses, the current study found NORA, not ORA, was significantly associated with increased illicit substance use in Latino SMM. A potential explanation for ORA not being significantly associated with substance use is religion's, especially Catholicism's, widespread prevalence in Latino culture (PRC, 2014). Religious service

Table 2
Results of logistic regression analyses for illicit substance use associations with DUREL subscales^{a,b}

	OR (SE)	Wald χ^2	95% CI	OR (SE)	Wald χ^2	95% CI	OR (SE)	Wald χ^2	95% CI
	<i>Cocaine</i>			<i>Heroin</i>			<i>Opiates</i>		
ORA	1.41 (0.19) ⁻	3.135	[0.96, 2.07]	1.31 (0.21)	1.69	[0.87, 1.96]	1.53 (0.20) [*]	4.42	[1.03, 2.27]
NORA	1.69 (0.20) ^{**}	6.82	[1.14, 2.52]	1.53 (0.22) ⁻	3.76	[0.99, 2.34]	1.56 (0.21) [*]	4.45	[1.03, 2.35]
IR	0.93 (0.10)	0.59	[0.76, 1.13]	1.14 (0.13)	1.06	[0.89, 1.46]	1.01 (0.12)	0.01	[0.80, 1.27]
	<i>Amphetamines</i>			<i>Hallucinogens</i>			<i>Sedatives/Tranquilizers</i>		
ORA	0.74 (0.21)	2.03	[0.50, 1.12]	0.95 (0.19)	0.06	[0.66, 1.38]	1.03 (0.21)	0.02	[0.68, 1.56]
NORA	1.67 (0.22) [*]	5.41	[1.08, 2.56]	1.24 (0.19)	1.25	[0.85, 1.82]	2.33 (0.24) ^{***}	12.10	[1.45, 3.76]
IR	1.34 (0.14) [*]	4.65	[1.03, 1.74]	1.09 (0.10)	0.86	[0.90, 1.33]	0.95 (0.13)	0.14	[0.74, 1.22]
	<i>Steroids</i>								
	OR (SE)	Wald χ^2	95% CI						
ORA	1.20 (0.22)	0.72	[0.78, 1.85]						
NORA	0.85 (0.23)	0.52	[0.54, 1.33]						
IR	1.29 (0.14) ⁻	3.54	[0.99, 1.68]						

ORA = Organizational religious activity, NORA = Nonorganizational religious activity, IR = Intrinsic religiosity, OR = Odds ratio, SE = standard error, CI = confidence interval.

^a Parameter estimates only reported for models with overall significance

^b All models included the Hispanic and Non-Hispanic subscales of the Bidimensional Acculturation Scale as covariates

⁻ $p < .10$.

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$

attendance in Latino individuals may be more indicative of participation in their culture than internalization of religious values. Past studies have shown that, while relatively small, there is a portion of individuals in the US who identify as “religious but not spiritual” (Marler & Hadaway, 2002). In cultures where religious attendance is common, ORA may be more representative of this “religious but not spiritual” sphere of religious identity, wherein one participates in religious practices but does not place high importance on their religious identity.

NORA, may represent greater internalization of one’s religious beliefs, as NORA reflects how often one participates in religious activities in their private time. NORA, in a culture where religious activity is common, may be indicative of those who identify as both “religious and spiritual,” meaning these individuals not only participate in religious activities, but they internalize these beliefs and place greater importance on their religious identity. NORA would thus be associated with greater substance use in Latino SMM potentially due to the fact greater internalization of negative religious beliefs towards SM individuals can lead to greater stress and negative health outcomes (Page, Lindahl, & Malik, 2013). Individuals who reported greater NORA are potentially spending more private time reflecting on and participating in religious activities associated with non-affirming religious doctrine, which may lead to higher levels of internalized heterosexism (Barnes & Meyer, 2012). Internalized SM individuals (Hequembourg & Dearing, 2013), indicating greater NORA in Latino SMM may be an important factor in understanding substance use in this group.

IR was not significantly associated with decreased substance use. This finding was not consistent with prior literature, which found a similar measure of religious importance to be a protective factor in substance use among SM women (Drabble et al., 2016). Varied findings may be explained by the way religiosity was measured – the current study used a continuous variable comprised of the 3-item IR subscale of the DUREL, whereas the previous study dichotomized their sample into two categories based on responses to a single item. The findings from these two studies highlight how varied operational definitions of religiosity can lead to divergent results. The methodological issue of operationally defining religiosity for research is not new (Koenig, 2012), but it should be examined more thoroughly in future research. A potential explanation for IR not being associated with illicit substance in the current sample is SMM in religious communities may experience stress as a product of the interaction of their sexual orientation with their religious involvement, thereby making the protective effects of

religion on health less salient in this population. One study found religiosity, (measured with items very similar to those of the IR subscale of the DUREL), acted as buffer against the associations between adverse life events and substance use in a sample of heterosexual adolescents (Wills, Yaeger, & Sandy, 2003). In SM samples, religiosity may exacerbate rather than buffer negative life events. These findings highlight cultural and demographic factors, as well as the multidimensional nature of religiosity, are important to consider when studying the association between religiosity and health behaviors.

4.1. Limitation and future directions

The findings from this study should be interpreted in the context of several limitations. First, the sample was collected solely from the San Diego County area, and many of the participants were recruited through dating applications. Thus, findings may not be generalizable to Latino SMM outside this geographic region. Additionally, while the DUREL does assess three subdimensions of religiosity, the measure is brief – totaling five items. Use of comprehensive measures of religiosity that include constructs such as religious coping and internalization of religious beliefs in studies examining SM health may help better understand the nuanced ways in which religiosity is associated with substance use in this population of Latino SMM. Another limitation of this study is the DUREL assesses religiosity in the present. Much of the research on the associations between religiosity and SM health assess current levels of religiosity, and do not account for the fact a non-religious individual may have been raised in a religious household. For Latino SMM who were reared in non-affirming religious settings, their religious upbringing may still impact their health behaviors in adulthood even if they are no longer religious. This is an especially important factor to consider in Latino SM health, as the widespread prevalence of religion in the Latino community increases the chances of Latino SM individuals experiencing religion in childhood. Future studies should consider utilizing longitudinal methodology to assess how religiosity influences health behaviors in Latino SMM across the lifespan.

Future research should also examine the associations between religiosity and SM health within other racial minorities where religion is a salient factor. For example, 8 in 10 African Americans identify as Christian (Masci, 2018), meaning religiosity may also lead to unique associations with the health of African American SM individuals as compared to White or Latino SM individuals. Future research should

aim to take an intersectional approach, where the intersection between minority identities and cultural factors is assessed. While the current study establishes one way in which religiosity is associated with negative health behaviors in a SM sample, limited research has tested the mechanistic pathways through which religiosity can negatively impact SM physical health. One study found various aspects of religiosity were associated with mental health and minority stress outcomes in unique ways (see Lassiter et al., 2017), and future research may wish to test these associations in physical health outcomes as well. Additionally, future research could help inform clinicians and researchers about potential points of prevention and intervention so the negative aspects of religious experience can be addressed, thereby reducing the negative impact of religiosity on SM health.

4.2. Implications

This study has some potentially relevant clinical implications. NORA may be an important risk factor to address when providing services to Latino SMM engaging in illicit substance use behaviors. Past research has shown interventions utilizing a focus on spirituality and religious beliefs are effective in treatment of substance use disorders (Lyons, Deane, Caputi, & Kelly, 2011); however, it is unknown if these interventions are as effective for SM individuals. For Latino SMM who have greater levels of nonorganizational religious activity, these types of interventions may not be as effective; religiosity may even act as a potential barrier to recovery. Clinicians may wish to use a multifaceted approach for substance use treatment in this population, first aiming to address the negative impact religion may have on the individual and its potential contribution to substance use behaviors. By addressing religiosity concerns in the context of the substance use, clinicians may be able to reduce illicit substance use, as well as reduce stress.

5. Conclusions

This study adds to the growing body of literature that religiosity is not necessarily a protective factor against negative health outcomes in sexual minority populations and may potentially even be a risk factor (Lamb, Nogg, Rooney, & Blashill, 2018; Rostosky et al., 2007). The current study's findings highlight the importance of researching associations between religiosity and sexual minority health, while taking into account other potentially relevant factors such as ethnicity.

References

- 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, 505–515. <https://doi.org/10.1111/j.1939-0025.2012.01185.x>.
- Calvillo, J. E., & Bailey, S. R. (2015). Latino religious affiliation and ethnic identity. *Journal for the Scientific Study of Religion*, 54, 57–78. <https://doi.org/10.1111/jssr.12164>.
- Carrico, A. W., Storholm, E. D., Flentje, A., Arnold, E. A., Pollack, L. M., Neilands, T. B., Rebchook, G. M., Peterson, J. L., Eke, A., Johnson, W., & Kegeles, S. M. (2017). Spirituality/religiosity, substance use, and HIV testing among young black men who have sex with men. *Drug and Alcohol Dependence*, 174, 106–112. <https://doi.org/10.1016/j.drugalcdep.2017.01.024>.
- Census Bureau, U. S. (2010). Overview of Race and Hispanic Origin: 2010. Retrieved from <https://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>.
- Centers for Disease Control and Prevention. DASH – Youth Risk Behavior Surveillance System (YRBSS): High School – Including Sexual Orientation, 2015. (2015). <https://chronicdata.cdc.gov/Youth-Risk-Behaviors/DASH-Youth-Risk-Behavior-Surveillance-System-YRBSS/q6p7-56au> Available from.
- Centers for Disease Control and Prevention: National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. (2016). Gay and bisexual men's health: Substance use. Retrieved from <https://www.cdc.gov/msmhealth/substance-abuse.htm>
- 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. <https://doi.org/10.1016/j.drugalcdep.2016.01.022>.
- Escobar, O. S., & Vaughan, E. L. (2014). Public religiosity, religious importance, and substance use among Latino emerging adults. *Substance Use & Misuse*, 49, 1317–1325. <https://doi.org/10.3109/10826084.2014.901384>.
- García, D. I., Gray-Stanley, J., & Ramirez-Valles, J. (2008). “The priest obviously doesn't know I'm gay”: The religious and spiritual journeys of Latino gay men. *Journal of Homosexuality*, 55, 411–436. <https://doi.org/10.1080/00918360802345149>.
- Hall, D. E., Meador, K. G., & Koenig, H. G. (2008). Measuring religiosity in health research: Review and critique. *Journal of Religion and Health*, 47, 134–163. <https://doi.org/10.1007/s10943-008-9165-2>.
- Hequembourg, H. L., & Dearing, R. L. (2013). Exploring shame, guilt, and risky substance use among sexual minority men and women. *Journal of Homosexuality*, 60, 615–638. <https://doi.org/10.1080/00918369.2013.760365>.
- Kerridge, B. T., Pickering, R. P., Saha, T. D., Ruan, W. J., Chou, S. P., Zhang, H., ... Hasin, D. S. (2017). Prevalence, sociodemographic correlates and DSM-5 substance use disorders and other psychiatric disorders among sexual minorities in the United States. *Drug and Alcohol Dependence*, 170, 82–92.
- Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. *ISRN Psychiatry*, 2012, 1–33. <https://doi.org/10.5402/2012/278730>.
- Koenig, H. G., & Büssing, A. (2010). The Duke University Religion Index (DUREL): A five-item measure for use in epidemiological studies. *Religion*, 1, 78–85. <https://doi.org/10.3390/rel1010078>.
- Koenig, H. G., Meador, K. G., & Parkerson, G. (1997). Religion index for psychiatric research. *American Journal of Psychiatry*, 154, 885–886.
- Lamb, K. M., Nogg, K. A., Rooney, B. M., & Blashill, A. J. (2018). Organizational religious activity, hypertension, and sexual orientation: Results from a nationally representative sample. *Annals of Behavioral Medicine*, XX, 1–11. <https://doi.org/10.1093/abm/kax066/4858443>.
- Lassiter, J. M., Saleh, L., Grov., C., Starks, T., Ventuneac, A., & Parsons, J. T. (2017). Spirituality and multiple dimensions of religion are associated with mental health in gay and bisexual men: Results from the One Thousand Strong cohort [Psychology of Religion and Spirituality]. 1–9. <https://doi.org/10.1037/rel0000146>.
- Lyons, G. C., Deane, F. P., Caputi, P., & Kelly, P. J. (2011). Spirituality and the treatment of substance use disorders: An exploration of forgiveness, resentment and purpose in life. *Addiction Research & Theory*, 19, 459–469. <https://doi.org/10.3109/16066359.2011.555022>.
- Marin, G., & Gamba, R. J. (1996). A new measurement of acculturation for Hispanics: The Bidimensional Acculturation Scale for Hispanics (BAS). *Hispanic Journal of Behavioral Sciences*, 18, 297–316. <https://doi.org/10.1177/07399863960183002>.
- Marler, P. L., & Hadaway, C. K. (2002). “Being religious” or “being spiritual” in America: A zero-sum proposition? *Journal for the Scientific Study of Religion*, 41, 289–300. <https://doi.org/10.1111/1468-5906.00117>.
- Masci, D. (2018). 5 facts about the religious lives of African Americans. *Fact Tank*. Retrieved from <http://www.pewresearch.org/fact-tank/2018/02/07/5-facts-about-the-religious-lives-of-african-americans/>.
- Myers, R., Chou, C., Sussman, S., Baezconde-Garbanati, L., Pachon, H., & Valente, T. W. (2009). Acculturation and substance use: Social influence as a mediator among Hispanic alternative high school youth. *Journal of Health and Social Behavior*, 50, 164–179. <https://doi.org/10.1177/002214650905000204>.
- 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, 665–677. <https://doi.org/10.1111/jora.12025>.
- Pew Research Center. (2014). The shifting religious identity of Latinos in the United States: Nearly one-in-four Latinos are former Catholics. Retrieved from <http://assets.pewresearch.org/wp-content/uploads/sites/11/2014/05/Latinos-Religion-07-22-full-report.pdf>
- Plöderl, M., & Tremblay, P. (2015). Mental health of sexual minorities: A systematic review. *International Review of Psychiatry*, 27, 367–385. <https://doi.org/10.3109/09540261.2015.1083949>.
- 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, 440–447. <https://doi.org/10.1016/j.jadohealth.2006.11.144>.
- Rostosky, S. S., Danner, F., & Riggle, E. D. B. (2010). Religiosity as a protective factor against heavy episode drinking (HED) in heterosexual, bisexual, gay, and lesbian young adults. *Journal of Homosexuality*, 57, 1039–1050.
- Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality (2011). *The NSDUH Report: Substance Use among Hispanic Adolescents*. MD: Rockville. Retrieved from https://www.samhsa.gov/data/sites/default/files/WEB_SR_007/WEB_SR_007_WEB_SR_007.htm#footnotel1.
- Unger, J. B., Schwartz, S. J., Huh, J., Soto, D. W., & Baezconde-Garbanati, L. (2014). Acculturation and perceived discrimination: Predictors of substance use trajectories from adolescence to emerging adulthood among Hispanics. *Addictive Behaviors*, 39, 1293–1296. <https://doi.org/10.1016/j.addbeh.2014.04.014>.
- Wills, T. A., Yaeger, A. M., & Sandy, J. M. (2003). Buffering effect of religiosity for adolescent substance use. *Psychology of Addictive Behaviors*, 17, 24–31. <https://doi.org/10.1037/0893-164x.17.1.24>.