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Religiosity and HIV-related drug risk behavior: a multidimensional assessment of individuals from communities with high rates of drug use

Veena G. Billioux, ScM[(1)], **Susan G. Sherman, PhD**[(1)], and **Carl A. Latkin, PhD**[(2)]
[(1)]Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health

[(2)]Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health

Abstract

We examined the relationship between religiosity and HIV-related drug risk behavior among individuals from communities with high rates of drug use who participated in the SHIELD (Self-Help in Eliminating Life Threatening Disease) study. This analysis examined the dimensions of religious ideation, religious participation and religious support separately to further understand the relationship with risk taking. Results indicate that greater religious participation appeared to be the dimension most closely associated with drug behaviors. Specifically, we found that those with greater religious participation are significantly less likely to report recent opiates or cocaine use; injection drug use; crack use; needle, cotton or cooker sharing. Future work to understand the nature of these associations will assist in the development of interventions in communities with high rates of drug use.

Keywords

Religion; Drug use; Risk Behavior; HIV; injection drug user

Introduction

Religion plays an important role in the lives of many Americans, with about 95% reporting a belief in God or a higher power (Gallup and Lindsay, 2000). The National Survey on Drug Use and Health in 2005 found that among 78% of adults aged 18 or older (N=45,664), religious beliefs play a very important role in their lives, and 75% report that religious beliefs influence how they make decisions (Substance Abuse and Mental Health Services Administration, 2007). According to Gallup polls, which have been tracking religious participation since the 1940s, 90% of Americans reported praying and over two thirds of Americans (69%) report being members of a church or synagogue and 40% attend services regularly (Gallup and Lindsay, 2000).

For the past two decades, researchers have systematically investigated the relationship between religiosity and indicators of physical health status, mental health, and emotional well-being (Khavari and Harmon, 1982; Brizer, 1993; Levin, Chatters, and Taylor, 2005). In the comprehensive work, *Handbook of Religion and Health*, Harold Koenig and colleagues systematically reviewed more than 1,200 studies and 400 research reviews and found religious participation is associated with lower rates of cancer, hypertension, depression, and anxiety (Koenig, McCullough, and Larson, 2001). Placing greater importance on religion, frequent religious service attendance, and taking part in private religious practices such as prayer all predict less alcohol and drug abuse in adults. However, many prominent

researchers in the field have noted that the future course of study should move beyond finding associations and should focus on explaining the mechanism of these relationships (Koenig, 2007; Edlund et al., 2010). Greater religiosity can reduce the likelihood of turning to alcohol and other drugs through a number of mechanisms, including emphasized feelings of religious pride or shame that can discourage risky behaviors (Campbell et al., 1999); influence on social networks and decreased association with individuals who abuse substances; or through increasing coping skills.

In addition, religious organizations often participate in outreach activities and support groups for members. A survey of churches found that 68% have community outreach programs (Lincoln and Mamiya, 1990) and 16% conduct youth-specific activities, which include pregnancy prevention programs, teen parenting programs, HIV awareness, and mentoring programs (Billingsley and Caldwell, 1991). Church groups have also been involved in substance abuse prevention programs (Lorch and Hughes, 1988) and studies have shown that the greater a person's religious involvement, the less likely he or she is to initiate alcohol or drug use (Khavari and Harmon, 1982). Further, religious involvement has been associated with less use and fewer problems with alcohol, tobacco and illicit drugs (Bowie, Ensminger, and Robertson, 2006; Larson, Swyers, and McCullough, 1998). Despite the influence that religion can have on behavior, the relationship between religion and substance use is more complex and less studied among those that have already initiated drug use (Edlund et al., 2010). For example, several studies have found that religious involvement tends to be low among people in substance abuse treatment (Brizer, 1993; Kroll and Sheehan, 1989).

In this analysis we seek to examine whether religiosity is associated with recent drug use or sharing drug injection equipment, in communities with high rates of drug use. This is an area of public health importance since laboratory studies have isolated viral nucleic acids from injecting equipment including drug cookers — used to mix and heat drugs and cotton — used to filter drugs after they have been mixed with water (Heimer et al., 1992; Shah et al., 1996). Sharing needles, cotton, cookers or other equipment used for drug injection is a well known route for transmission of HIV and other blood borne pathogens (Centers for Disease Control and Prevention, 1987). In addition, drug use contributes to transmission and spread far beyond the circle of those who inject drugs. Sexual partners are also at risk of infection through high risk behaviors. The purpose of this analysis is to explore whether specific dimensions of religiosity — religious ideation, religious participation and religious support — are associated with drug risk behavior. Understanding these associations can assist in the development of interventions in communities with high rates of drug use.

Methods

Data were collected from participants living in Baltimore, Maryland who participated in the SHIELD (Self-Help in Eliminating Life Threatening Disease) study longitudinal cohort. The SHIELD intervention is a randomized controlled network-oriented experimental intervention to help stop the spread of HIV and hepatitis infections. All participants who completed the 5th SHIELD follow-up interview (N=838), between July 2002 and June 2004, were included in the analysis and missing data was less than 15% per visit.

The SHIELD intervention, which began recruitment in 1997, trained individuals from communities with high rates of drug use on techniques for personal risk reduction. Participants in the intervention were also trained to be peer educators and conduct HIV prevention education within their social networks. Methods for the SHIELD study have been detailed elsewhere (Latkin, Sherman, and Knowlton, 2003). Eligibility criteria for the SHIELD study included: age 18 years or older, daily or weekly contact with drug users,

willingness to conduct AIDS outreach education, willingness to bring in network members for an interview, and no concurrent enrollment in an HIV prevention or network study. The trainings and follow-up interviews were conducted in a community-based research clinic and all participants provided written informed consent approved by the Johns Hopkins School of Public Health Committee on Human Research. Trained interviewers conducted face-to-face interviews and sensitive questions were ascertained through a self-administered instrument using Audio Computer-Assisted Self-Interview (ACASI).

Measures

Recent drug risk behaviors were that assessed by ACASI include: opiates or cocaine use in the past 6 months; injected heroin, cocaine, or speedball in the past 30 days; crack use in the past 6 months; share needles in the past 6 months; and share cotton or cookers in the past 6 months. Items from a multidimensional measurement instrument were included in the wave 5 assessment (Fetzer Institute/National Institute on Aging Working Group, 1999). The instrument categorizes religiosity/spirituality into the following ten domains: preference or affiliation, history, social participation, private practices, spiritual support, spiritual coping, beliefs and values, spiritual commitment, motivation for regulating and reconciling relationships, and experiences. These domains, based on factor analyses, break down into three main categories: religious ideation, religious participation, and religious support. In addition to these main variables of interest, sociodemographics, such as age, employment, income, and education, and health status (Table 2) were also obtained through the interview.

Data Analysis

Univariate and multivariate logistic regression analyses were used to evaluate the relationship between religiosity and drug use and risk behaviors by estimating odds ratios and their 95% confidence intervals. The dependent variables (recent drug use and risk behaviors) were dichotomized and the independent variables (religious of ideation, religious participation and religious support) were operationalized as scales. The three items in each scale were summarized into a single score that was then standardized. In addition, several sociodemographic covariates were dichotomized due to skewed distribution. Results were considered statistically significant at $p < 0.10$. All statistical tests were computed using Stata/Intercooled version 10 (Stata Corp., College Station, TX).

Results

Sample Characteristics

Participants' sociodemographic characteristics are presented in Table 2. The sample was predominantly male (59%), the majority (75%) reported an income less than $1,000 in the past month and 80% reported unemployment in the past 6 months. In addition, 14% reported recent homeless and 62% currently report using opiates or heroin. The sample's religious preference was predominantly Baptist (62%), Catholic (9%), Apostolic, Holiness or Pentecostalism (7%), and 11% reported a religious preference that was not specified. The majority (74%) reported being moderately or very spiritual while 30% reported attending religious services weekly or more. Almost all (92%) reported praying more than once a week. In addition, 29% report that they attend religious services at least once a week and 68% report attending religious services at least once a month.

Correlates of recent drug use and risk behaviors

Logistic regression was used to examine the relationship between drug risk behaviors and the three dimensions of religiosity — religious ideation, religious participation and religious support. Gender, age, self-reported health status, income, employment status and education

were also included in the regression models to control for the effects of these variables. Results shown in Table 3 indicate an inverse association between religiosity and recent drug use or risk behaviors. Table 4 shows a comparison between all dimensions of religiosity. In this comparison, greater religious participation appears to be the dimension most strongly associated with drug and HIV risk behaviors. Results indicate that those with greater religious participation are significantly less likely to report recent opiates or cocaine use (adjusted odds ratio [AOR]: 0.54; 95% Confidence Interval [CI]: 0.45–0.65); heroin, cocaine, or speedball injection (AOR=0.73; 95% CI: 0.60–0.89); and crack use (AOR: 0.70; 95% CI: 0.58–0.85). Interesting when all three dimensions of religiosity were entered into the model sharing needles (AOR: 0.62; 95% CI: 0.28–1.41); or sharing cotton or cookers (AOR: 0.85; 95% CI: 0.60–1.08) became non significant, suggesting that religious participants was not more strongly associated than the other two dimensions with these two injection related HIV risk behaviors .

Discussion

The current study is one of the first to explore multiple dimensions of religiosity and drug risk behaviors. The findings of this analysis suggest that religiosity has an inverse association with recent drug use and risk behaviors, among communities with high rates of drug use and at heightened risk of HIV. Further, the present findings suggest that church attendance is frequent and religion is a strong source of guidance and support among highly impoverished inner-city former and current drug users. The findings show that religious participation is a key driver between religion and drug behavior.

Religious participation can influence substance use and recovery by establishing moral order, providing opportunities to acquire learned competencies, and providing social and organizational ties (Smith, 2003).In this context, religious participation is an indirect measure of social support and social integration (Koenig, 2007). These findings are consistent with a nationally representative telephone survey, which reported that African Americans are significantly more religious than the general US population (Pew Forum on Religion and Public Life, 2008). Among groups with low levels of social integration, the church appears to be one of the most important social institutions (Berkman, 1995; Tigges, Browne, and Green, 1998).

The study findings are consistent with a previous study of the baseline characteristics of the same population. That study found that recent church attendance was significantly associated with HIV testing, HIV-positive serostatus, and receiving medical care for HIV in multivariate regression models, even after adjusting for possible confounders. In addition, the study findings suggest that the church may be an important source of support and social regulation among HIV-infected inner-city African-American drug users (Latkin, Tobin, and Gilbert, 2002). Existing research also suggests that religion and spirituality are related to improved treatment outcomes and continued sobriety among former substance abusers (National Center on Addiction and Substance Abuse at Columbia University, 2001). Further, although relatively few clergy have the training to diagnose or treat substance abuse, tremendous potential exists to involve many more faith communities in the effort to prevent and treat substance abuse, and to reduce its impact on the nation’s poorest children and families (Wallace et al., 2004).

The study is limited by self-reported data, cross-sectional study design, and nonrandom sample. It is plausible that drug use leads to reduce religious participation and/or religious participation leads to reduced drug use. It may be that religious participation and controlling drug use are mutually reinforcing. Although a range of models were tested, it is likely that the models presented do not fully account for reciprocal relationships among the behaviors

nor do they assess all stressors and potential mediating variables. Prospective studies to assess causal pathways are needed as are qualitative examinations of religious congregations to delineate the dynamics of the social desirability response bias in measuring religious involvement (Sherman et al., 2000). In addition, the findings presented here may not be generalized to other populations with differing denomination affiliations.

The study findings show that religious participation is a key driver between religion and health behavior among those that have initiated drug use. Understanding the mechanism and how religious involvement impacts risk taking, will bring us closer to understanding why this association occurs. Of particular interest is examining factors that facilitate drug users' participation in religious activities. In many religious organizations drug abuse is actively targeted as an unaccepted behavior. In such a contest, it will be interesting to examine how individuals who use drugs reconcile this seemingly large obstacle and actively attend religious services. Some many attend religious institutions that have support groups for drug users but it is likely that others attend religious institutions that lack such structures.

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Table 1

SHIELD 5 questions on religiosity

Question and response scale	Dimensions of religiosity
To what extent do you consider yourself a spiritual person?[a*]	Religious ideation
To what extent do you consider yourself a religious person?[b*]	Religious ideation
How often do you pray?[c]	Religious ideation
Is there anyone in your congregation who makes you feel loved and cared for?[d]	Religious support
Is there anyone in your congregation who listens to you talk about your private problems and concerns (including your pastor)?[d]	Religious support
How comfortable would you feel talking with people in your congregation about your difficulties or problems you are having?[e]	Religious support
Besides religious services, how often do you take part in other activities at a place of worship (like AA, kids night, singles, bible study, choir)? [c*]	Religious participation
How often do you go to religious services? [c*]	Religious participation
Compared to when you were a child, do you attend church more, less, or about the same amount?[f]	Religious participation

[*] Fetzer Institute's Multidimensional *Measurement* of Religiousness/Spirituality

[a] Not spiritual at all, Slightly spiritual, Moderately spiritual, Very spiritual, Don't Know, Refuse to Answer, Not Applicable

[b] Not religious at all, Slightly religious, Moderately religious, Very religious, Don't Know, Refuse to Answer, Not Applicable

[c] Never, Once or twice a year, Every month or so, Once or twice a month, Every week, More than once a week, Don't Know, Refuse to Answer, Not Applicable

[d] Yes, No, Sometimes, Don't Know, Refuse to Answer, Not Applicable

[e] Very comfortable, Somewhat comfortable, Not comfortable at all, Don't Know, Refuse to Answer, Not Applicable

[f] More, Less, About the same, Don't Know, Refuse to Answer, Not Applicable

Table 2

Demographic and Risk Behavior Characteristics of SHIELD Participants.

Characteristic	Total *n* (%)
Number of participants	838
Baptist	518 (61.8)
Apostolic/Holiness/Pentecostalism	60 (7.2)
Catholic	76 (9.1)
Muslim	37 (4.4)
Other religious preference	93 (11.1)
No religious preference	54 (6.4)
Homeless in the past 6 months	121 (14.4)
Education: high school diploma or higher	439 (52.4)
Income (individual) in past month <$500	302 (36.0)
Currently has a main partner	560 (66.8)
Employed at least part-time	225 (26.9)
Spent time in prison in the past 6 months	158 (18.9)
Good to excellent general health	489 (58.4)
HIV-seropositive	199 (23.8)
Frequently attend 12 step or self health program (>2–3 times per month)	318 (38.0)
Admitted in methadone maintenance program in past 6 months	237 (28.3)
Used opiates or cocaine (regardless of administration) in the past 6 months	512 (61.1)
Injected heroin, cocaine, or speedball in the past 30 days	223 (26.6)
Crack use, past 6 months	300 (35.8)
Share needles, past 6 months	13 (1.6)
Share cotton or cookers, past 6 months	59 (7.0)

All variables are mutually exclusive.

Table 3

Religious Ideation, Participation and Support and Drug Risk Behaviors among SHIELD Participants (N=838)

Religious Ideation		
Drug Risk Behavior	**Univariate Odds Ratios (95%CI)**	**Multivariate Adjusted Odds Ratios[+] (95%CI)**
Opiates or cocaine use, past 6 months (regardless of administration)	0.79*** (0.68, 0.92)	0.79*** (0.68, 0.92)
Heroin, cocaine, or speedball use, past 30 days (injection)	0.82*** (0.71, 0.95)	0.82** (0.71, 0.96)
Crack use, past 6 months	0.87** (0.76, 0.99)	0.85** (0.73, 0.98)
Shared needles, past 6 months	0.69* (0.46, 1.04)	0.72 (0.47, 1.11)
Shared cotton or cookers, past 6 months	0.86 (0.68, 1.09)	0.86 (0.68, 1.10)
Religious Participation		
Drug Risk Behavior	**Univariate Odds Ratios (95%CI)**	**Multivariate Adjusted Odds Ratios[+] (95%CI)**
Opiates or cocaine use, past 6 months (regardless of administration)	0.57**** (0.49, 0.66)	0.56**** (0.48, 0.65)
Heroin, cocaine, or speedball use, past 30 days (injection)	0.70**** (0.60, 0.82)	0.70**** (0.60, 0.83)
Crack use, past 6 months	0.71 **** (0.61, 0.82)	0.70**** (0.61, 0.82)
Shared needles, past 6 months	0.49** (0.25, 0.95)	0.51** (0.26, 0.98)
Shared cotton or cookers, past 6 months	0.72** (0.54, 0.95)	0.72*** (0.55, 0.96)
Religious Support		
Drug Risk Behavior	**Univariate Odds Ratios (95%CI)**	**Multivariate Adjusted Odds Ratios[+] (95%CI)**
Opiates or cocaine use, past 6 months (regardless of administration)	0.76**** (0.66, 0.88)	0.77*** (0.66, 0.89)
Heroin, cocaine, or speedball use, past 30 days (injection)	0.80*** (0.69, 0.93)	0.81*** (0.69, 0.94)
Crack use, past 6 months	0.83*** (0.72, 0.95)	0.83** (0.72, 0.96)
Shared needles, past 6 months	0.60** (0.37, 0.95)	0.62** (0.39, 1.00)
Shared cotton or cookers, past 6 months	0.71*** (0.56, 0.90)	0.73*** (0.57, 0.92)

[+] adjusted for: sex, age, self reported health status, income, employment status and education

* $p < 0.10$;

** $p < 0.05$;

*** $p < 0.01$;

**** $p < 0.001$

Table 4

Religiosity dimensions (Ideation, Participation and Support) and Drug Risk Behaviors among SHIELD Participants (N=838)

Characteristic	Religious Ideation Adjusted Odds Ratios^ (95%CI)	Religious Participation Adjusted Odds Ratios° (95%CI)	Religious Support Adjusted Odds Ratios (95%CI)
Opiates or cocaine use, past 6 months (regardless of administration)	0.93 (0.79, 1.10)	0.54**** (0.45, 0.65)	1.13 (0.93, 1.36)
Heroin, cocaine, or speedball use, past 30 days (injection)	0.91 (0.78, 1.07)	0.73*** (0.60, 0.89)	0.99 (0.82, 1.19)
Crack use, past 6 months	0.94 (0.80, 1.09)	0.70**** (0.58, 0.85)	1.04 (0.87, 1.24)
Shared needles, past 6 months	0.87 (0.55, 1.37)	0.62 (0.28, 1.40)	0.84 (0.45, 1.55)
Shared cotton or cookers, past 6 months	0.98 (0.75, 1.28)	0.85 (0.60, 1.22)	0.80 (0.59, 1.08)

^ adjusted for: sex, age, self reported health status, income, employment status, education, religious participation and religious support

° adjusted for: sex, age, self reported health status, income, employment status, education, religious ideation and religious support

~ adjusted for: sex, age, self reported health status, income, employment status, education, religious ideation and religious participation

* $p<0.10$;

** $p<0.05$;

*** $p<0.01$;

**** $p<0.001$