

# Dimensions of Religiosity and Access to Religious Social Capital: Correlates with Substance Use Among Urban Adolescents

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**Abstract** Although some evidence indicates that religiosity may be protective against substance use in the urban youth population, limited research has investigated the effects of multiple dimensions of religiosity on substance use in this population. In this study, a sample of 301 urban adolescents was used (a) to test the effects of three dimensions of religiosity (social religiosity, perceived religious support, and private religiosity) as well as proximity to religious institutions and (b) to determine their correlates with tobacco, alcohol, and marijuana use. It was hypothesized that all three dimensions of religiosity would act as protective factors against all types of substance use and that proximity to religious institutions from adolescents' routine locations would also serve as a protective factor against any type of substance use. Results of logistic regression analysis showed that social religiosity and perceived religious support were protective against marijuana and tobacco use,

respectively. Private religiosity was not protective against any type of substance use. Proximity to religious institutions was protective against alcohol use. These findings suggest the importance of examining multiple dimensions of religiosity when investigating substance use in urban youth and offer initial evidence of the importance of proximity to religious institutions as a protective factor against substance use.

**Keywords** Dimensions of religiosity · Access to religious social capital · Substance use · Urban adolescents · GIS

## Introduction

### Background

Adolescent substance use and abuse remains a significant public health problem, with marijuana use and heavy alcohol use steadily increasing over the past 2 years (Johnston, O'Malley, Bachman, & Schulenberg, 2011). Older, urban youth are particularly vulnerable to early use and future abuse of illicit drugs and alcohol (Johnston et al., 2011; Martino, Ellickson, & McCaffrey, 2008). Considering the multitude of potential negative consequences of adolescent substance use, researchers remain focused on identifying critical risk and protective factors (Harden, 2010). A growing body of research indicates

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that religiosity may be protective against substance use and abuse, particularly among adolescents (Catalano et al., 1992; Chitwood, Weiss, & Leukefeld, 2008; Dew et al., 2008; Francis, 1997; Miller, Davies, & Greenwald, 2000; Rew & Wong, 2006; Sinha, Cnaan, & Gelles, 2007; Wills, Yaeger, & Sandy, 2003; Yeung, Chan, & Lee, 2009). A review of over 750 studies clearly showed that individuals with high religiosity involvement were less likely to use substances and less likely to have experienced the consequences of substance use than those with low religiosity involvement (Johnson, Tomkins, & Webb, 2002). Given the evidence that religiosity may have a protective effect against substance use in urban youth populations, in this study, we examined the role that three specific dimensions of religiosity, as well as proximity to religious institutions, play in influencing substance use involvement among urban adolescents.

### Dimensions of Religiosity

Religiosity is a complex and multidimensional construct within adolescent substance use research. Researchers have defined it in various ways, which include personal religious beliefs and affiliations, public activities such as church attendance, and private practices such as prayer (Chitwood et al., 2008; Dew et al., 2008; Marsiglia, Ayers, & Hoffman, 2012; Nonnemaker, McNeely, & Blum, 2003; Rew & Wong, 2006; Yeung et al., 2009). However, previous research been criticized for determining religiosity based on a single dimension, such as church attendance, rather than on multiple dimensions using developmentally appropriate tools and measures (Benda, Pope, & Kelleher, 2006; Cotton, McGrady, & Rosenthal, 2010).

In an effort to understand the potential protective aspects of religiosity, research has focused on various dimensions theorized to constitute it. Because unique dimensions of religiosity may have different profiles for influencing substance use (Marsiglia et al., 2012), both aspects of internal and external religiosity need to be examined concurrently; however, only a few studies have done so (Cox, Danelia, Larzelere, & Blow, 2012). In this study, we focused on three dimensions of religiosity: social religiosity, perceived religious support, and private religiosity. Social religiosity refers to the public behavioral aspects of religious practice (e.g., church attendance, participation in various

religious activities with others; Krause & Wulff, 2005; Nonnemaker et al., 2003; Simmel, 1997). Perceived religious support refers to both a congregant's feelings of general support and comfort (e.g., sharing feelings, sympathy, encouragement) and specific instrumental support, which refers to tangible offers to assist with tasks, materials, or money (Fetzer Institute, 1999). Private religiosity refers to intrapersonal aspects of religious practice (e.g., prayer life, relative personal importance of one's chosen belief system; Nonnemaker et al., 2003; Walker, Ainette, Wills, & Mendoza, 2007). Research has shown that social and private religiosity are protective against tobacco, alcohol, and marijuana use, with private religiosity having a greater protective effect in experimental users (Nonnemaker et al., 2003). Research has also found that attendance at religious services, feelings of support from one's congregation, and perceived importance of (private) religiosity each have inverse relationships with adolescent substance use (Wills et al., 2003).

### Proximity to Religious Social Capital in Inner-City Settings

Religious institutional involvement has been shown to be related to multiple dimensions of health (Trinitapoli, Ellison, & Boardman, 2009) and to multiple adolescent protective factors (Regnerus, 2000). A possible explanation for the latter is that religious institutions serve as a normative structure for adolescents, providing them with preventative sanctions and a location for the development of relationships that teach prosocial behavior (Longest & Vaisey, 2008). Particularly in inner-city settings, religious institutions provide a wide range of social services in an effort to help fill the gaps created by budgetary constraints placed on already struggling social service agencies (Fitzpatrick & LaGory, 2000). This safety net role of urban religious institutions provides religious social capital to local residents and can motivate the larger community to participate in health promotion and disease prevention. Consequently, many of these active religious institutions serve as visual and symbolic focal points for otherwise blighted and dangerous neighborhoods, representing a positive and central institution for many urban families (Fitzpatrick & LaGory, 2000). Particularly in poor, African American neighborhoods, religious involvement is a significant

source of social networking and community life engagement (Putnam, 2000; Sinha, 2007). Research has shown that religiously involved African American adolescents are less likely to engage in alcohol and drug use (Gorush, 1995; McBride, Mutch, & Chitwood, 1996; Smith, 2005) and are more likely to be gainfully employed (Putnam, 2000) than their non-religiously involved counterparts. While generalizations of these relationships must be done with caution, further inquiry is necessary.

Religious social capital has been conceptualized both as relationships that are developed within a religious institution and as voluntary membership and participation within religious institutions (Williams, 2008). Religious social capital may have “spillover” effects, thereby creating spaces of positive regard for others that extend beyond the religious institution’s walls and into the surrounding community. Furthermore, it is plausible that this spillover effect may influence youth behavior, à la Bronfenbrenner’s (1979) mesosystem effects, and interactions among neighborhoods, churches, and individuals. For example, individuals who are active churchgoers may be more likely to be concerned about children and youth in their neighborhood compared to those who are not churchgoers (Yeung, 2004). This concern could lead to an increase in informal support, outreach, mentoring, and modeling with urban youth. Thus, the urban church may provide indirect protective effects through the natural distribution of religious social capital throughout urban communities and interconnected neighborhood networks.

Based upon a review of the literature and related research, in this study, we hypothesized that all three dimensions of religiosity (social religiosity, perceived religious support, and private religiosity) would act as protective factors against all types of substance use (tobacco, alcohol, and marijuana) and that proximity to religious institutions would also serve as a protective factor against any pattern of substance use.

## Methods

### Participants and Procedures

The sample comprised 301 adolescent patients receiving primary care at a community health center operated by the Philadelphia Department of Public

Health. The Philadelphia Department of Public Health manages and supervises operations at Philadelphia’s eight Health Centers. The current study was conducted at Health Center #4, which has an adolescent medicine program that serves approximately 1,300 adolescents annually: Patients are between the ages of 13 and 20 years of age, and 60 % are female. We have a long-established relationship with the staff at Health Center #4, thus allowing for high-quality data collection.

Adolescents who met eligibility requirements (i.e., age between 13 and 20 years, Philadelphia resident, and registered clinic patient) were recruited to participate in the study. Adolescents over the age of 18 were approached directly while they waited for their appointments to begin. Written informed consent was obtained from all parents and/or adolescent participants (consent rate was 90 %). Nominal incentives were used to acknowledge participants’ time and effort. The authors’ university and the City of Philadelphia Health Department’s institutional review boards approved the research protocol, and the study received a federal Certificate of Confidentiality from the National Institutes of Health.

### Measures

Sociodemographic characteristics such as age, gender, race/ethnicity, and socioeconomic status of all participants were collected using an intake form.

### *Substance Involvement*

Substance involvement was measured with the Adolescent Alcohol and Drug Involvement Scale (AADIS) (Moberg, 1991). The AADIS has good internal consistency (Cronbach’s alpha of 0.94) and is highly correlated with self-reported measures of substance use ( $r = 0.72$ ), clinical assessments ( $r = 0.75$ ), and subjects’ perceptions of the severity of their own drug use problem ( $r = 0.79$ ). For the present study, the AADIS had a Cronbach’s alpha of 0.83. Higher scores on the AADIS represent greater frequency of alcohol and drug involvement.

Frequency of substance use was collected using the substance history section of the AADIS, which asks about each substance with the following response options: “Never used” (0), “Tried but quit” (1), “Several times a year” (2), “Several times a month” (3),

“Weekends only” (4), “Several times a week” (5), “Daily” (6), and “Several times a day” (7). Participants were classified as “Non-Users” if they scored 0 or 1; “Experimental Users” if they scored 2 or 3; and “Regular Users” if they scored 4 or greater.

### Religiosity

Religiosity was measured with the Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS; Fetzer Institute, 1999), which has been shown to be a reliable and valid tool for assessing religiosity and spirituality in adolescents (Harris et al., 2007; Stewart, Koeske, & Koeske, 2006). The BMMRS has acceptable levels of internal consistency (Cronbach’s alpha  $>0.70$ ) and test–retest reliability (intraclass correlation coefficients  $>0.70$ ). In the present study, seven items from the BMMRS were used and split into three categories: social religiosity, perceived religious support, and private religiosity. For social religiosity, two items were used: (a) frequency of attendance of religious services and (b) frequency of attendance of other religious activities (Cronbach’s alpha of 0.71). For perceived religious support, two items were used: (a) instrumental support from congregation (tangible assistance from others) and (b) comfort from congregation (emotional; Cronbach’s alpha of 0.86). For private religiosity, three items were used: (a) “consider myself to be religious,” (b) “consider myself to be spiritual,” and (c) “believe that God watches over me” (Cronbach’s alpha of 0.66). The two perceived religious support items and the three private religiosity items had 4-point response scales ranging from 1 (*not at all*) to 4 (*a great deal*), and the two social religiosity items had 6-point response scales ranging from 1 (*never*) to 6 (*more than once a week*). Items were standardized to produce *Z* scores to aid in analysis and interpretation of results. Higher scores indicate greater social religiosity, perceived religious support, or private religiosity.

### Proximity to Religious Institutions

The ecological interview (Mason, Cheung, & Walker, 2004) was used to identify the home and routine locations of participants in order to determine their proximity to religious institutions. The ecological interview is a structured interview that uses “free

listing” (Weller & Romney, 1998) of weekly routine locations that each adolescent frequents. A typical list of routine locations would include “friends’ home,” “city park,” “restaurant,” “recreation center,” and “school.” Participants were asked to identify specific locations that they regularly frequent in a priority order such as (a) complete addresses if known; if not, then (b) cross streets; and lastly, (c) names of known landmarks such as parks, subway stations, and the like. Then, participants were asked which place from their routine locations is (a) the most important, (b) the safest, (c) the riskiest, and (d) their favorite. Safe places were defined as the place safest from harm and danger, or the place where adolescents were least likely to engage in risky or dangerous activities. Risky places were defined as the place where adolescents were most likely to engage in risky or dangerous activities, cause trouble, or do illegal activities.

The resulting place data were geocoded using geographic information systems (GIS) software to produce mapped point locations, so that each participant was associated with a specific set of mapped home, risky, safe, and other places. GIS was then used to measure the distance (in meters) from each routine and home location to the nearest religious institution to generate the distance-to-religious-institution variable. Religious institutions included 1,709 churches, mosques, synagogues, and other places of worship in Philadelphia, collected by searching the digital yellow pages and other digital listings.

### Analytic Plan

Our previous research indicates that different types of places are associated with different contextual influences on adolescent substance use where, for example, social influences were found to be most influential at an adolescent’s perceived risky place compared to his or her home or other types of places (Mennis & Mason, 2011). To investigate this, we used Pearson correlation to investigate the association of substance use with the distance to the nearest religious institution from the different types of home and routine locations (i.e., home locations as well as those routine locations that were rated as important, safe, risky, and favorite). We found that only the distance to religious institution from the home location was significantly correlated with substance use. Therefore, in the remainder of the

analysis, we focus solely on the home location of adolescents.

Logistic regression analysis was then employed to test the hypotheses that the three dimensions of religiosity and proximity to religious institutions all influence substance use, while controlling for gender (using male as referent) and age group (13–16 = younger teens; 17–20 = older teens). Predictor variables included social religiosity, perceived religious support, and private religiosity, representing the three dimensions of religiosity, and distance to nearest religious institution. The distance-to-religious-institution variable was transformed by dividing it by 100 to aid in the interpretation of the odds ratio. Outcome variables included tobacco, alcohol, and marijuana use, as other substance use was reported by 1 % or less of the sample. The frequency of tobacco, alcohol, and marijuana use was tested using two categories: (a) “non-users” (never used, tried but quit) and (2) “users” (including experimenters and regular users). The dichotomized variable “users” was created due to the small sample size of the “experimenters” group for both tobacco ( $n = 7$ ) and marijuana ( $n = 23$ ) use and the small sample size of the “regular” alcohol users ( $n = 28$ ) as displayed in Table 1. Two separate logistic regression models were built to examine the level of protection that social religiosity, perceived religious support, and private religiosity and proximity to religious institutions had against frequency of tobacco, alcohol, and marijuana use. Confidence intervals (95 %) of adjusted odds ratios were used for significance testing of the hypotheses.

## Results

Table 1 shows the descriptive statistics for the sociodemographic and all substance use variables included in the models. As shown, 61.0 % of the sample was female and 87.0 % African American. Tobacco use was reported by 15.3 % of the sample, alcohol use was reported by 35.9 %, and marijuana use was reported by 19.2 %.

Table 2 shows the results from the binary logistic regression model and accompanying adjusted odds ratios associated with any substance use and confidence intervals for each outcome variable.

Younger teens (13–16) were significantly less likely than older teens (17–20) to use tobacco. Being female

**Table 1** Demographic and substance use variables for all participants ( $N = 301$ )

	Variable	Frequency	%
Gender	Female	183	61.0
	Male	118	39.0
Age group	Young teens (13–16)	136	45.2
	Older teens (17–20)	165	54.8
Race/ethnicity	African American	262	87.0
	Mixed race/other	39	13.0
Substance use	<i>Tobacco use</i>		
	Non-use	255	84.7
	Experimental use	7	2.3
	Regular use	39	13.0
	<i>Alcohol use</i>		
	Non-use	193	64.1
	Experimental use	80	26.6
	Regular use	28	9.3
	<i>Marijuana use</i>		
	Non-use	243	80.7
Experimental use	23	7.6	
Regular use	35	11.6	

greatly reduced the likelihood of tobacco use, but this decrease did not achieve statistical significance. Perceived religious support was protective against tobacco use, where a greater magnitude of perceived religious support was associated with less tobacco use.

Younger teens (13–16) were also significantly less likely than older teens (17–20) to use alcohol. Distance to religious institution was protective against alcohol use. Specifically, we found that for every 100-meter increase from an adolescent’s home to the nearest religious institution, the risk of alcohol use increased by a factor of 1.65.

As with tobacco and alcohol, younger teens (13–16) were significantly less likely than older teens (17–20) to use marijuana. Additionally, social religiosity was protective against marijuana use. Higher scores on the social religiosity scale were associated with the absence of marijuana use, increasing protection against marijuana use for every unit increase in this scale.

## Discussion

While religiosity in general has been found to be protective against substance use among adolescents,

**Table 2** Odds ratios and 95 % confidence intervals for substance use by demographic, religious, and geographic variables ( $N = 301$ )

Variable	Tobacco		Alcohol		Marijuana	
	AOR	95 % CI	AOR	95 % CI	AOR	95 % CI
Female <sup>a</sup>	0.513	0.261, 1.01	0.653	0.377, 1.131	0.788	0.431, 1.44
Young teens (13–16) <sup>b</sup>	0.225***	0.098, 0.516	0.195***	0.347, 0.110	0.482*	0.911, 0.255
Social religiosity <sup>c</sup>	0.862	0.666, 1.11	0.835	0.690, 1.012	0.789*	0.631, 0.985
Perceived religious support <sup>c</sup>	0.824*	0.680, 0.997	0.981	0.836, 1.152	1.014	0.852, 1.206
Private religiosity <sup>c</sup>	1.083	0.911, 1.28	0.946	0.825, 1.085	1.052	0.903, 1.225
Distance to religious institution	0.950	0.667, 1.35	1.652**	1.161, 2.351	1.136	0.875, 1.476

Substance use was structured as users (experimental and regular) versus non-users

AOR Adjusted odds ratio, CI confidence interval

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

<sup>a</sup> Reference group was males

<sup>b</sup> Reference group was older teens (17–20 years)

<sup>c</sup> Higher scores indicate greater magnitude of variable construct

the protection provided by specific dimensions of religiosity and proximity to religious institutions among urban adolescents has not been extensively examined (Marsiglia et al., 2012; Vaughan, de Dios, Steinfeldt, & Kratz, 2011). At a descriptive level, the current findings showed that alcohol use is twice as prevalent as tobacco use among urban adolescents, and that 1 in 5 adolescents use marijuana. In this sample of urban adolescents, perceived religious support and social religiosity played a protective role against tobacco use and marijuana use, respectively. Private religiosity, however, was not protective against tobacco, alcohol, or marijuana use. These findings point towards the potential protective role that perceived religious support and social religiosity may play in adolescent involvement with substances. They also encourage further examination of the effects of various dimensions of religiosity as a part of a comprehensive substance use prevention strategy for urban youth.

Our findings also highlight the possible protective role that proximity to religious institutions may play in adolescent alcohol use. For alcohol users, the further away their home was located from a religious institution, the greater their likelihood of use. This finding should be explored further given that the presence of religious institutions is routinely perceived as fostering stability within a community (Kinney & Walker, 2006); however, the risk or protective impact of the precise distance from home to church has not been previously explored. Although we do not know whether adolescents in this

sample attended a particular religious institution, a possible explanation for these findings may be that families are more likely to be involved in a religious institution when it is in closer proximity to their home. Another explanation is that religious institutions may signify an extent of social capital in the community that exerts a positive influence on youth living nearby. Research has shown that the presence of community resources, such as religious institutions and recreational opportunities, is associated with positive health outcomes (Macintyre, 2007). Such health benefits may be due not only to the direct effects of resources such as positive youth programming in churches but also to the collective efficacy and social capital that such community resources may signify and facilitate within the neighborhood (Carpiano, 2006). Our findings suggest that investigating proximity to religious institutions, and particularly accessibility to the social and supportive dimensions associated with religious institutions, offers an interesting area for future prevention research.

The importance of social religiosity (frequency of attendance) and perceived religious support highlights how an adolescent's engagement with others may encourage healthy decision-making related to substance use (Wallace et al., 2007). For example, these relationships may provide the peer and adult modeling necessary for adolescents to uphold their health beliefs and health-related goals. It has been suggested that this level of support and provision of coping resources allow individuals to handle stress and dysphoria; without such

resources, stress and dysphoria could lead to substance use (Pargament, 1997). Additionally, social religiosity has been shown to impact self-control and tolerance for deviance, which, in turn, impacted substance attitudes and use (Walker et al., 2007). Thus, developing and establishing socioreligious support systems may help to remind youth that they are not alone in positive development achievement and, in turn, may help to reduce substance consumption.

Although private religiosity has been shown to be protective against adolescent substance use (Mason & Spoth, 2011), in the current study, it was not protective against any substance use. A possible explanation for this finding is that some urban adolescents may utilize religious guidance and support through their developmental transitions in order to consistently behave in accordance with their internal beliefs about healthy choices. Effective dedication to their health behavior beliefs and goals related to substance use may become increasingly challenging without the guidance of, and increased access to, adults or like-minded peers who are accessed through religious communities. These are complex issues that require further research. Our findings that social religiosity was significantly related to less substance use, but private religiosity was not, are additionally interesting due to the evidence of the need for congruence between an individual's levels of internal and external religiosity. For instance, recent research shows that adolescents most at risk for alcohol and tobacco use are those whose church attendance (social religiosity) is high but whose rating of religion's importance in their life (private religiosity) is low (Marsiglia et al., 2012). More research is needed into the risk and protective mechanisms associated with internal and external religiosity.

Several limitations should be considered when interpreting the current study's results. First, this study was cross-sectional and therefore cannot fully test the causal hypothesis that was advanced. Alternative interpretations of the findings, such as adolescents who use less substances are more likely to be involved in religion, could be made, as we were unable to empirically test the order of the predictor and outcome variables in our models. However, based on the literature reviewed and the theoretical models proposed, our findings can be useful in advancing the further study of the protective qualities of religiosity among urban youth. Second, the religiosity assessment, while pertinent for this study, could be more extensive

in order to achieve a clearer delineation between social religiosity, perceived religious support, and private religiosity. Third, this study would benefit from more personalized accounts of religiosity. Information regarding the type and level of attendance at religious institutions and religiously affiliated activities, as well as the location of these activities, would assist in further distinguishing the relevance of accessibility to religious social capital. Finally, private religiosity was measured with three items generating a moderate Cronbach's alpha (0.66), reducing confidence in the intercorrelation of these three items. Future studies would do well to explore other known items that could yield a higher Cronbach's alpha coefficient.

## Conclusion

The current findings may be informative to prevention research efforts seeking to further understand and specify the mechanisms involved in religious social engagement as a potential protective factor against adolescent substance use. Religiosity has been predominantly studied as one collective concept, which has limited its utility and application within substance use prevention research. By extending previous research, this study should encourage a continued effort toward decoupling the different dimensions of religiosity when studying substance use in urban youth. It also offers initial evidence of the importance of proximity to religious institutions as a protective factor against substance use.

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