Religion and Substance Use among Youths of Mexican Heritage: A Social Capital Perspective

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Abstract

Despite elevated levels of substance use among many Latino youths, there has been little research on protective factors against such use. In keeping with federal commitments to address health disparities, this prospective study examined the protective influence of religion on substance use among a school-based sample ($N = 804$) of youths of Mexican heritage in the American Southwest. Drawing from the social capital literature, the authors posited that both integration into religious networks and trust in religious values at time 1 (Tl) would predict less likelihood of using substances at time 2 (T2) but that exposure to religious norms at Tl would not predict subsequent substance use at T2. The hypotheses regarding religious networks and religious norms were largely confirmed, whereas little support emerged for the hypothesis regarding religious values. The results are discussed in light of the various pathways through which religion may exhibit a protective influence.

Keywords

Mexican Americans; religion; social capital; substance use; youths

Compared with high school students in the early 1990e, current students are doing much better on a broad array of health-risk measures (cCenters for Disease Control and Prevention [CDC], 2008c). However, Latino students—of which Mexican-heritage youths comprise the majority—have not experienced the same degree of progress (CDC, 2008a). According to the CDC's (2008b) National Youth Risk Behavior Survey, Hispanic students were more likely than either African American or non-Hispanic white students to use cocaine, heroin, or Ecstasy; ride with someone who had been drinking alcohol; avoid going to school due to safety concerns; be offered illegal drugs on school property; and drink alcohol while at school.

Although Latinos fair better than other ethnic groups on some other substance use measures, the CDC's epidemiological data may understate the substance use problem among Latino youths because it is based on students who are currently attending high school. Relative to black and white students, the drop-out rate among Latino students is much higher (Keppel, 2007). In earlier grades—before most students have dropped out—the prevalence rates across a number of substance use measures are comparatively higher for Latinos (Delva et

al., 2005). For example, with the exception of amphetamines and smokeless tobacco, Latinos in the eighth-grade have the highest rates of use across all substances (Johnston, O'Malley, Bachman & Schulenberg, 2003). Because early initiation into substance use predicts use in later adolescence (Vega, Chen, & Williams, 2007; Warner et al, 2006), it is possible that the substance use problem among Latinos is significantly greater than the already concerning picture delineated by the CDC.

Despite federal commitments to address health disparities in areas such as substance use, little research has been conducted with Latino samples (Amaro & Igachi, 2006). The need for such research is particularly pressing when considering that Latinos are now the largest ethnic minority group in the United States, accounting for 15% of the total population (U.S. Census Bureau, 2008). Furthermore, given that youths are particularly at risk for substance abuse, and the Latino population is younger than the general population and characterized by high fertility rates, identifying protective factors that help prevent substance use among youths is of critical importance (Delva et al, 2005; Volkow, 2006).

One factor that may inhibit substance use among youths is the multidimensional construct of religion. *Religion* can be understood as a shared set of beliefs and practices that has been developed in community with people who have similar understandings of the transcendent, which is designed to mediate an individual's relationship with God or the transcendent (Geppert, Bogenschutz, & Miller, 2007; Koenig, McCullough, & Larson, 2001). In the following sections, we review the relevant literature, discuss potential mechanisms whereby religion may exhibit a protective influence, and posit research hypotheses.

RELIGION AND YOUTH SUBSTANCE USE

A number of studies have examined the relationship between religion and substance use using nationally representative samples consisting primarily of non-Hispanic white youths (Bartkowski & Xu, 2007; Chu, 2007; Koenig et al., 2001; Nonnemaker, McNeely, & Blum, 2003; Sinha, Cnaan, & Gelles, 2007; Wallace et al., 2007). These studies have generally found an inverse relationship between religion and substance use. The relationships, however, were often inconsistent across various measures of religion, which has commonly been operationalized in terms of affiliation, attendance, or personal salience. For instance, after controlling for a number of potential confounds, Sinha et al. found that the personal importance attributed to religion was associated with a lower probability of using marijuana but was unassociated with alcohol use, whereas congregational attendance was linked with a lower probability of using both substances.

Some research has also been conducted with African American youths. Studies have examined the protective influence of religion among nationally representative samples of black youths (Wallace, Brown, Bachman & Laveist, 2003) as well as regional samples consisting of youths living in low-income housing (Stewart & Bolland, 2007), high school students in a metropolitan area (Steinman, Ferketich, & Sahr, 2008), and at-risk inner-city youths Johnson, Larson, Li, & Jang, 2000). Although some comparatively minor differences have been observed, the results obtained using African American samples and European American samples were relatively similar (Steinman et al., 2008; Wallace et al., 2003). Religion is generally inversely related to or unassociated with substance use.

Compared with European and African Americans, Latino youths have been the subject of relatively little research in this area (Hodge, Cardenas, & Montoya, 2001; Steinman et al, 2008). At least two studies have explored the relationship between religion and substance use among a sample of primarily Mexican American students in a metropolitan area (Marsiglia, Kulis, Nieri, & Parsai, 2006) and a primarily Hispanic sample of students in a rural area (Hodge et al., 2001). In keeping with the just-cited research on European and

African Americans, these studies found that religion exhibited a weak protective effect regarding the use of alcohol, tobacco, and marijuana. These results are consistent with the findings obtained in related research conducted with youths living in Mexico City (Benjet et al., 2007) and students in Panama, Costa Rica, and Guatemala (Kliewer & Murrelle, 2007). Potential mechanisms through which religion may exhibit a protective influence are discussed in the next section.

RELIGION: A SOCIAL CAPITAL PERSPECTIVE

A number of theoretical perspectives have been advanced to explain the generally positive association between religion and lower levels of substance use among youths (Koenig et al., 2001; Smith, 2003). One mechanism that is congruent with the conceptualization of religion as a communal construct is the notion of social capital (Bartkowski & Xu, 2007; Castro et al, 2007; Smith, 2003). A social capital perspective may be particularly relevant with Latino youths (Castro et al., 2007). Religion is woven into Latino culture and plays a significant role in many sections of the American Latino community. Although it is important to note that not all Latinos are religious, religion serves as a source of social capital for many Latinos (Wilson, 2008).

Drawing from Putnam's (2000) work, Bartkowski and Xu (2007) defined *faith-based social capital* as a composite of three components: norms, networks, and trust. These interrelated components serve to inhibit adolescent substance use. Religious *norms* entail values such as abstinence from illicit substances, self-control, looking to God or a higher power for help during times of stress, and respect of authorities (who typically espouse anti—substance use messages) (Smith, 2003). Religious *networks* include non-substance using adult role models and peer groups that provide opportunities to engage in prosocial activities. *Trust* consists of faith, belief, or confidence in the religious enterprise, which includes trust in religious norms and networks.

Thus, stocks of religious social capital comprise exposure to religious norms, integration into religious networks, and trust in or internalization of religious values (Bartkowski & Xu, 2007). As Bartkowski and Xu (2007) suggested, these three components can be assessed with the following three proxies. Religious affiliation (affiliated versus nonaffiliated) serves as a proxy for exposure to religious norms. Similarly, degree of religious participation assesses the level of integration into religious networks, and the self-ascribed importance of religion measures trust in or internalization of religious values.

Although single-item measures are characterized by a number of psychometric limitations, they can provide acceptable levels of reliability and validity in some cases (Menec, Shooshtari, & Lambert, 2007; Zimmerman et al., 2006). For instance, good to excellent reliability and validity has been reported for single-item measures of substance use and religion (for example, religious attendance) (Dollinger & Malmquist, 2009). As implied, single-item measures have been previously used to assess the aforementioned three components of faith-based social capital (Bartkowski & Xu, 2007). In the next section, hypotheses are developed regarding these three constructs.

THE PRESENT STUDY

On the basis of social capital theory and prior research, three hypotheses were tested in this study. Religion is often assumed to exert a protective effect regarding substance use; but the cross-sectional design used in most of the existing research precludes assessment of causality. To clarify understandings of any protective relationships that may exist, we used a prospective design to examine the relationship between religion and 30-day and lifetime use of alcohol, tobacco, marijuana, and inhalants. The general hypotheses were as follows:

First, we hypothesized that *religious affiliation* (exposure to religious norms) at time 1 (T1) would be unrelated to subsequent substance use at time 2 (T2). Conclusions regarding the research on the relationship between religious affiliation and substance use have been mixed (Bartkowski & Xu, 2007; Marsiglia et al., 2006; Weaver, Flannelly, & Strock, 2005). Mere exposure to religious norms, however, is unlikely to exhibit a protective influence, particularly given that youths may affiliate with a religion in keeping with their family tradition without any personal investment in the religion.

Second, we hypothesized that *religious participation* (integration into religious networks) at T1 would predict lower levels of substance use atT2. Relatively consistent associations between religious attendance and substance use have appeared in the literature (Walker, Ainette, Wills, & Mendoza, 2007; Weaver et al., 2005; Wills, Yaeger, & Sandy, 2003). As noted, integration into religious networks can provide youths with a forum in which to develop relationships with positive peer groups and adults.

Third, we hypothesized that *religious salience* (trust in religious values) at T1 would predict lower levels of substance use at T2. As is the case with religious attendance, cross-sectional research has frequently demonstrated an association between the self-ascribed importance of religion and lower substance use (Walker et al., 2007; Weaver et al., 2005; Wills et al., 2003). Having trust or confidence in religious values may result in the internalization of anti —substance use values.

These three hypotheses were tested with a sample of youths of Mexican heritage residing in a large metropolitan area of the southwestern United States. The Hispanic umbrella incorporates a diverse array of groups with heterogeneous patterns of substance use (Warner et al., 2006). In keeping with calls for more subgroup-specific research, the present study focused on the largest Latino subgroup in the United States (Warner et al., 2006).

METHOD

Study Sample

The study sample *(N = 804)* was drawn from a drug prevention study conducted in 39 elementary and middle schools serving primarily low-income, inner-city neighborhoods. Latino students formed the numerical majority in most schools. Initially, all students in grade 5 were selected to participate. Participants were subsequently surveyed four additional times, yielding five waves of data at the time of this study.

The present study's participants consisted of a subsample of students who claimed at least some Mexican heritage in wave 2 (spring 2005), when the religion items were asked, and who remained in the study at wave 5 (spring 2007). An attrition analysis was conducted among participants at T1 (that is, wave 2, *[N = 1, 371]*) to see if those who remained in the study two years later at T2 (that is, wave 5 *[N= 804]*) differed from those who dropped out. No significant differences existed between the two groups on any of the demographic or religion items listed in Table l, with the exception of students' grades. Both groups reported receiving mostly Bs, but those who dropped out of the study reported a slightly lower B average.

All variables listed in Table 1 were assessed at T1, with the exception of grades and generational status, which were not assessed at wave 2. Data on these two variables were carried forward from wave 1. Definitions of the variables are provided in the following section.

Measures

The study included predictor, control, and outcome variables. The three predictor variables were based on items widely used in national surveys (Fetzer Institute, 1999). In keeping with prior research in the medical literature (Bartkowski & Xu, 2007), generalized exposure to religious norms was measured with the following item: "What is your religion?" The original responses included Catholic, Protestant, Mormon, Native American Church or Native American Traditionalist religion, Jewish, Muslim, other religion, "I don't know the name of my religion," and "I don't have a religion." Responses were collapsed into two categories: 1 = those who affiliated with a religion, and 0 = those who did not. Integration into religious networks was assessed with the item "How often do you attend religious services at your church, mosque, synagogue, or temple?" on a five-point scale ranging from 0 = never to 4 = every week. Internalization of religious values was measured with the item "How important is religion to you?" on a four-point scale ranging 1 = not important to 4 = very important.

To better understand the effect of religion on substance use, independent of other potentially confounding factors, we included a number of control variables in the study: gender (0 = female, 1 = male), age in years, socioeconomic status (SES), academic performance, and acculturation. Receipt of a free or reduced-price school lunch served as proxy for SES (0 = no lunch, 1 = free or reduced-price lunch). Students' assessment of their "usual grades in school" on a nine-point scale ranging from 1 = mostly Fs (1) to 9 = mostly As served as a measure of global academic performance. Two continuous measures of acculturation— generational status and linguistic acculturation—were used to account for within-ethnic group heterogeneity. The measure of generational status was based on respondents' report of their own and their parents' birthplace on a three-point scale: 1 = foreign-born youth and parents, 2 = U.S.-born youth and at least one foreign-born parent, and 3 = U.S.-born youth and parents.

Linguistic acculturation was measured with a three-item scale based on the work of Marín, Sabogal, Marin, Otero-Sabogal, & Perez-Stable (1987). Individuals were asked what language they typically use when interacting with (1) family members; (2) friends; and (3) media such as television, radio, or music. For each item, a five-point scale was used, ranging from 1 = Spanish only through 3 = both Spanish and English to 5 = English only. The three items were averaged, with higher scores represented higher levels of linguistic acculturation. A Cronbach's alpha of .68 was obtained in this study. Although below the .70 coefficient commonly viewed as acceptable, it should also be noted that alphas are related to the number of items in the scale (Spicer, 2005). Holding interitem correlation constant, the fewer the items in the scale, the lower the alpha (Cortina, 1993). Thus, the lower alpha may be an artifact of using a scale with three items.

The outcome variables, measured at T2, were recent and lifetime use of alcohol, cigarettes, marijuana, and inhalants. Modeled on items used by Flannery, Flannery, Vasonyi, Torquati, and Fridrich (1994), these measures were selected for their developmental appropriateness and for their similarity to measures used in other large studies of substance use among early adolescents (Hecht et al., 2003; Kandel & Wu, 1995). Four items assessed the frequency of (1) alcohol, (2) cigarette, (3) marijuana, and (4) inhalant use in the last 30 days (0 = no times, 1 = one or more times). In the case of the alcohol measure, the original question specified that use constituted more than a sip ("How many times have you drunk more than a sip of alcohol in the last 30 days?"). The four lifetime items explored whether respondents had ever tried, "even if it was only once or a little," (1) alcohol, (2) cigarettes or tobacco, (3) marijuana, and (4) inhalants. Responses were coded as 0 = never or 1 = ever used a given substance.

Procedures

The study's procedures were approved by a university institutional review board and the participating school districts. Each written survey included the items in both English and Spanish. After parental and student authorization was obtained, the survey was administered by university-trained proctors during school hours while teachers were absent from the classroom. The proctors informed the students that their involvement was voluntary and that their responses would be confidential. Parents of 82% of enrolled children consented for their children to participate in the study. Ninety-six percent of children whose parents consented (that is 79% of enrolled children) agreed to participate. Aggregated school-specific reports were made available to school officials, but neither teachers nor school administrators were granted access to the original data.

Data Analysis

Across variables, missing data ranged from 0.0% to 6.3% of cases. For continuous items, the expectation-maximization algorithm was used to impute missing values (Schafer & Graham, 2002). For the dependent measures and other categorical variables, listwise deletion was used (Cohen & Cohen, 1983). Sequential logistic regression models were constructed to test the hypothesized relationships between religion and substance use. To obtain the most parsimonious models, the forward stepwise procedure was used with the first set of variables (comprising demographic data), whereas the backward stepwise procedure was used with the second set (comprising religion measures) (Spicer, 2005). The final models were also tested using the simultaneous entry of covariates procedure. Variance inflation factors well below 10 indicated no evidence of multicollinearity. Similarly, examination of studentized and standardized residuals in tandem with the deviance, DFBeta, and Cook's distance statistics suggested that the data generally fit the models well on the basis of widely used criteria (that is, 95% of studentized, standardized, and deviance values were between $+/-2$ and DFBeta and Cook's distance < 1) (Field, 2005).

RESULTS

Thirty-Day and Lifetime Prevalence Rates atT2

Descriptive statistics were computed to determine respondents' levels of substance use at T2. Prevalence rates for the 30-day items were as follows: 26.2% *(n = 211)* drank more than a sip of alcohol, 8.2% *(n = 66)* smoked cigarettes, 10.3% *(n = 83)* smoked marijuana, and 8.5% *(n = 68)* used inhalants to get high in the previous 30 days.

A somewhat similar pattern of use emerged for the four lifetime measures. Prevalence rates for each of the lifetime items were as follows: 49.1% (n = 395) tried alcohol, 16.8% *(n = 135)* tried cigarettes or tobacco, 16.5% *(n = 133)* tried marijuana, and 11.3% *(n = 91)* tried inhalants at least once during their lives. Comparison data from statewide Arizona surveys of third- through sixth-graders indicate that rates of alcohol use prevalence have ranged from a low of 20% in 1997 to a high of 39% in 1991 (Donovan, 2007). Therefore, the rate of alcohol use prevalence in this fifth-grade sample is higher than statewide rates. We were unable to find comparable state data for substances other than alcohol for this age group.

Multivariate Results for 30-Day Measures

To test the study's three hypotheses while controlling for potential confounding variables (for example, acculturation), we used logistic regression. This statistical procedure provides reliable estimates with skewed distributions (Morrow-Howell & Proctor, 1992). Odds ratios are reported for each variable in the model along with their respective 95% confidence intervals (Spicer, 2005). Subtracting 1 from the reported ratio and multiplying the result by

100 indicates the percentage of increase or decrease in the odds of using a particular substance.

The multivariate results for the four 30-day substance use measures are reported in Table 2. As it shows, the first hypothesis—that religious affiliation at T1 would be unrelated to substance use at T2—was confirmed for all 30-day outcomes but one, alcohol use. It is interesting to note that youths who were affiliated with a religion were more likely to use substances than were youths in the nonaffiliated reference group. Specifically, youths who were affiliated with a religion were 98% more likely to have more than a sip of alcohol within the past 30 days than were nonaffiliated youths.

The second hypothesis—that religious participation at T1 would predict lower levels of substance use at T2—was supported in the cases of three of the four outcomes. Higher levels of attendance at religious services at T1 was inversely associated with drinking more than a sip of alcohol, smoking marijuana, and sniffing inhalants two years later. For instance, for every unit increase in service attendance at T1, the odds of youths drinking more than a sip of alcohol decreased by 14% atT2. Religious attendance was not associated with recent cigarette usage.

Conversely, the third hypothesis—that religious salience at T1 would predict lower levels of substance use at T2—was unconfirmed. Self-ascribed importance of religion was not associated with any of the four measures of recent substance use.

Multivariate Results for Lifetime Measures

The multivariate results for the four lifetime substance use measures are reported in Table 3. The first hypothesis was confirmed; religious affiliation at T1 did not predict lifetime substance use for alcohol, cigarettes, marijuana, and inhalants at T2. Regarding the second hypothesis, religious attendance was unassociated with lifetime use of either alcohol or cigarettes, but it was inversely associated with lifetime marijuana and inhalant use. Specifically, for every unit increase in religious service attendance at T1, the odds of youths trying marijuana decreased by 15% at T2. Similarly, for each unit increase in attendance at T1, the odds of youths trying inhalants decreased by 20% at T2.

Regarding the third hypothesis, religious salience was inversely associated with the lifetime use of cigarettes and marijuana. For every unit increase in self-ascribed importance of religion at T1, the odds of trying cigarettes decreased by 22% at T2. Similarly, for each unit increase in importance at T1, the odds of trying marijuana decreased by 21% at T2. Religious salience was not related to lifetime alcohol or inhalant use. The results are discussed in the following section, with an emphasis on the various pathways through which religion may exhibit a protective influence.

DISCUSSION

This prospective study adds to the knowledge base by examining the relationship between religion and substance use among a sample of youths of Mexican heritage. Social capital theory provided the basis for the three hypotheses. Religious social capital was conceptualized as an interrelated construct consisting of exposure to religious norms, integration into religious networks, and trust in or internalization of religious values. In keeping with the first hypothesis, religious affiliation (a proxy for exposure to religious norms) was unrelated to substance use, with the exception of recent alcohol use. In this one case, affiliation predicted a greater likelihood of consuming more than a sip of alcohol in the previous 30 days.

This anomaly may be explained by the predominately Roman Catholic affiliation of the Mexican-heritage sample in conjunction with meaning associated with affiliation. As noted in the introduction, affiliation does not necessarily imply personal endorsement of anti-substance using norms, especially for children who may select an affiliation in keeping with family tradition. Furthermore, moderate amounts of alcohol use are not proscribed within the Catholic tradition (Hodge et al., 2001; Marsiglia et al., 2006). Nominally affiliated students may perceive that alcohol use is acceptable given the widespread social use of alcohol among devout Catholics.

The second hypothesis was supported for marijuana and inhalant use. Religious attendance (a proxy for integration into religious networks) at T1 predicted less likelihood of using these substances at T2 across both 30-day and lifetime measures. Attendance was also linked to lower levels of recent alcohol use, but not to lifetime alcohol use or recent or lifetime cigarette use.

The third hypothesis was only supported for two lifetime measures. Religious salience (a proxy for trust in or internalization of religious values) predicted less likelihood of using cigarettes and marijuana. Self-ascribed importance of religion was unrelated to any of the 30-day measures as well as lifetime alcohol and inhalant use.

These longitudinal findings build on, and extend, previous cross-sectional research. Although prospective studies do not directly address the issue of cause and effect, they do provide insight into directional relationships relative to cross-sectional designs. As such, this study increases our understanding of the protective effects of religion among the largest Latino subgroup in the United States. Consistent with Bartkowski and Xu (2007), religious attendance exhibited the strongest protective influence across various measures of substance use.

This finding suggests that integration into religious networks may serve as the foundational component of religious social capital. Religion often plays a central role in the Latino community in the United States (Wilson, 2008). Integration into religious networks may play a key role in inhibiting substance use by, for example, incorporating youths into a supportive community of individuals who refrain from using substances while imbuing such choices with transcendent significance. In turn, early participation in such networks may enhance youths' ability to abstain from substance use as they move through adolescence.

In addition, at a concrete level, time spent engaged in religious activities translates into less available time for antisocial activities. Not all religious activities may be prosocial (underage youths might still drink at a church social without adults' knowledge), but they are less likely to be antisocial. Such activities are more likely to be supervised, with the attendant supervision reducing the likelihood of underage substance use. In other words, religious attendance reduces the amount of time youths have to use substances in much the same way that participation in adult-supervised sports activities may reduce the time available to use substances.

The limited protective influence associated with self-described religious salience has at least three possible explanations. First, it is possible that trust in religious values, a relatively subjective construct, may be unrelated to substance use. Second, because of the relatively young age of the participants in the present study, they may not have formulated a religious identity, or their identity may not yet have sufficiently matured so as to function protectively in the area of substance use. Alternatively, youths may have had a well-formed religious identity, but self-described importance of religion may be a poor proxy for the internalization of religious values. Because most of the students in the sample were not yet using, following up with the students as they get older could be an important future step for

assessing such possibilities. Furthermore, future researchers might consider using other measures that more accurately capture the underlying construct, such as an age-appropriate measure of intrinsic religion (Hill & Hood, 1999).

The present study's use of multiple measures to assess various forms of substance use provides a more nuanced understanding of the protective effects of religion (Koenig et al., 2001). Consistent with previous cross-sectional research with primarily Latino samples, differential relationships emerged (Hodge et al, 2001; Marsiglia et al., 2006). Different measures of religion seem to exhibit varying protective effects on different forms of substance use.

The most robust predictor—religious attendance—predicted less likelihood of using marijuana and inhalants, two substances that are clearly proscribed within the Catholic tradition (Hodge et al., 2001; Marsiglia et al., 2006). These relationships are consistent with the notion that attendance functions as a proxy for integration into religious networks. Latino religious networks permit some degree of alcohol use and, to a lesser extent, cigarette use, but they clearly discourage the use of illicit substances such as marijuana and inhalants. The more youths participate in religious networks, the more they may adopt these differential patterns of substance use. Thus, religious networks exhibit a protective influence regarding substances that are clearly discouraged by the networks, a perspective consistent with the results reported in this study.

Religious salience exhibited a protective influence for lifetime cigarette and marijuana use, but not for recent use of these two substances. This may be a sign that the protection erodes with age and the accompanying developmental pressure to experiment and use these two substances. Further research is needed, however, to confirm this supposition.

The findings and discussion should be considered in the light of the study's limitations. Given that the sample was drawn from schools in one large southwestern U.S. city, the results cannot be generalized to other samples of Mexican American youths. Similarly, due to heterogeneous patterns of substance use among various Latino subpopulations, the results should not be generalized to other Latino subpopulations (Warner et al., 2006). It is possible that religion functions differently among, for example, Mexican Americans and Cuban Americans.

Although sequential logistic regression is commonly used in emerging knowledge areas (Spicer, 2005), certain trade-offs are associated with its use (Cohen & Cohen, 1983). Furthermore, relatively low levels of substance use among the present sample may have inhibited the identification of significant relationships due to a lack of sufficient variation in the dependent measures. It is also possible that other unmeasured constructs may have influenced the findings. For instance, disorganized families often have problems attending religious services, and children from such homes may use substances at higher rates.

As noted previously, another limitation was the use of single-item, self-report measures to assess each of the three distinct religion constructs. Similarly, the use of self-report items to assess adolescent substance use also raises possible concerns. Depending on circumstances, some youths may either overreport or underreport their use of various substances. Some research conducted with Latino youths, however, has found that self-report measures have a high degree of concordance with biochemical measures, which are widely held to represent the gold standard in substance use measurement (Dillon, Turner, Robbins & Szapocznik, 2005). This research suggests that some degree of confidence in the present study's findings is warranted.

CONCLUSION

Youths of Mexican heritage are the largest Latino subgroup in the United States (Warner et al, 2006). Understanding the patterns of substance use and the protective factors that exist among this growing population is of critical importance. The longitudinal design and relatively large sample size used in this study help advance our knowledge of these relationships.

This prospective study suggests that religion may be one factor that inhibits substance use. Early integration into Latino religious networks may protect youths from later substance use as they make the journey through adolescence and acculturation. Further research is needed, however, to confirm this relationship and to better understand the pathways through which religion exhibits a protective influence among youths of Mexican heritage and other Latino subgroups. **SWR**

Acknowledgments

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Table 1

Sample Characteristics (A/ = 804)

Characteristic	n^a	%	M	SD
Gender (male)	804	51.9		
Free or reduced lunch (yes)	773	89.1		
Age (years)	804		10.73	0.59
Usual grades received[a]	804		7.04	1.71
Generational status[b]	804		1.90	0.65
Linguistic acculturation[c]	804		3.40	0.80
Religious affiliation (yes)	766	84.3		
Religious attendance[d]	804		2.27	1.53
Religious salience[e]	804		3.28	0.87

Note: Individual *n*s indicate the total number of respondents who provided answers regarding the given characteristic.

[a] Measured on a nine-point scale ranging from 1 = mostly Fs to 9 = mostly As.

[b] Measured on a three-point scale: 1 = foreign-born youth and parents, 2 = U.S.-born youth and at least one foreign-born parent, 3 = U.S.-born youth and parents.

[c] Three items were measured {results averaged) on a five-point scale (with responses indicating what language a youth typically uses when interacting with [1] family members; [2] friends; and [3] media such as television, radio, or music) ranging from 1 = Spanish only through 3 = both Spanish and English to 5 = English only. Higher scores represented higher levels of acculturation.

[d] Measured on a five-point scale (with responses indicating how often a youth attended religious services) ranging from 0 = never to 4 = every week.

[e] Measured on a four-point scale (with responses indicating how important religion was to a youth) ranging from 1 = not important to 4 = very important.

Table 2

Odds Ratios and Confidence Intervals (in parentheses) for predictors of Recent Alcohol, Cigarette, Marijuana, and Inhalant Use at Time 2

Variable	Alcohol	Cigarettes	Marijuana	Inhalants
		Demographics		
Gender (1 = male[a])	—	—	—	2.14 [**] (1.22–3.76)
SES(1 =free lunch[b])	—	—	—	—
Age	—	—	—	—
Grades	—	0.87 [*] (0.75–0.99)	—	—
Generational status	1.25 (0.97–1.62)	—	1.91 [***] (1.37–2.84)	—
Linguistic acculturation	—	1.59 [*] (1.07–2.37)	—	—
		Religion		
Affiliation (1 = affiliated[c])	1.98 [*] (1.08–3.61)	—	—	—
Attendance	0.86 [**] (0.77–0.96)	—	0.82 [**] (0.70–0.95)	0.84 [*] (0.71–0.99)
Salience	—	—	—	—

Note: Dashes represent items not included in final model. SES = socioeconomic status.

[a] Reference group: female.

[b] Reference group: no free/reduced-price lunch.

[c] Reference group: unaffiliated.

[*] p ≤ .05.

[**] p ≤ .01.

[***] p ≤ 001.

Table 3

Odds Ratios and Confidence Intervals (in Parentheses) for Predictors of Lifetime Alcohol, Cigarette, Marijuana, and Inhalant Use at Time 2

Variable	Alcohol	Cigarettes	Marijuana	Inhalants
		Demographics		
Gender (1 = male)[a]	—	—	1.96[*] (1.43–2.69)	1.91[**] (1.18–3.10)
SES(1 = free lunch)[b]	—	—	—	—
Age	—	—	—	1.40 (0.95–2.10)
Grades	—	—	—	—
Generational status	—	—	1.96[***] (1.43–2.69)	—
Linguistic acculturation	—	—	—	—
		Religion		
Affiliation (1 = affiliated)[c]	—	—	—	—
Attendance	—	—	0.85[*] (0.74–0.97)	0.80[**] (0.69–0.93)
Salience	—	0.78[*] (0.63–0.96)	0.79[*] (0.63–0.98)	—

Note: Dashes represent items not included in final model. SES = socioeconomic status.

[a] Reference group: female.

[b] Reference group: no free/reduced-price lunch.

[c] Reference group: unaffiliated.

[*] p ≤ .05.

[**] p ≤ .01.

[***] p ≤ .001.