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CONTROL OR CONVICTION: RELIGION AND ADOLESCENT INITIATION OF MARIJUANA USE

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Much research on adolescent deviance has supported a theory of social control, asserting that the lack of ties to institutions (such as school and parents) increases an adolescent's likelihood of using illicit substances. Researchers in this tradition often posit religion as one among many sources of norm enforcement. Yet religion may impact adolescents' behavior more directly through its ability to create beliefs and identities that are incompatible with illegal substance use. This paper uses a nationally representative, longitudinal data set of adolescents, the National Study of Youth and Religion, to examine the influence of traditional measures of social control, religious social control, and a new measure of religious salience on the probability of adolescents' first marijuana use. Results demonstrate that religious salience is more predictive of this initiation than are measures of involvement with religious organizations and several common social control indicators. We also find substantial interactions between different forms of religiosity. In the conclusion, we consider broader implications for understanding religion's influence on deviance.

INTRODUCTION

The impact of religion on social life has been a major source of debate since Durkheim ([1897] 1951) identified it as a key aspect of social integration and order. Religion's influence has been particularly contested in the delinquency and substance use literature, especially since Hirschi and Stark's (1969) widely cited finding of a null relationship between religiosity and delinquency. Since that time, scholars have contributed theories and evidence that have argued both for and against religion's potential impact on deviance (see Bahr, Maughan, Marcos, & Li, 1998

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versus Bahr, Hawks, & Wang, 1993 or Cochran & Akers, 1989 versus Cochran, Wood, & Arneklev, 1994). Yet, a common theme running throughout this debate has been the treatment of religion as a form of social capital, either as an additional site of direct social control or an institutional arena for the development of prosocial networks (Cratacci, 2003; Johnson, Jang, Larson, & Li, 2001; Putnam, 2000; Wong, 2005). We contend that this conceptualization of religion is too narrow, which may have partly contributed to the mixed findings, and we therefore seek to examine more fully the various mechanisms through which religion may encourage or deter adolescent substance use.

Most social scientists regard religion as a socially integrating institution, providing valuable resources to those attached and committed to it. Specifically for adolescents, religion can serve as an additional normative structure providing positively guided sanctions as well as a location for fostering beneficial relationships that teach adolescents prosocial behaviors (Johnson et al., 2001). Each of these social resources contributes to the avoidance of negative behaviors and their consequences and engagement in positive activities (see Regnerus, Smith, & Fritsch, 2003 for a review). Although we too believe in religion's mechanistic role in guiding adolescent behavior, we argue that a pure social capital approach to religion misses a key aspect of the processes leading to differential behavior patterns. Specifically, we contend that for the ties connecting adolescents to religion to shape behavior, the ties must mean something to them (see Emirbayer & Goodwin, 1994). In other words, religiosity involves more than heightened exposure to positive ties, rather it carries a certain moral directive. Thus, when religion becomes salient enough to the adolescents that they internalize this order, religion can serve as a motive for directing action (Smith, 2003a).

To test this more nuanced possibility, we examine the impact of different dimensions of religious life on the likelihood of first-time marijuana use among U.S. adolescents. Using a longitudinal, nationally-representative data set (National Study of Youth and Religion), we examine standard measures of general social control, religious social control, and a new measure of religious salience with respect to adolescents' initiation of marijuana use. In addition to the main effects, we also test for the significant impact of several theoretically proposed interaction terms between religious involvement, networks, and salience. Specifically, as we will detail later, we test six hypotheses:

1. Religion does not directly impact the likelihood of initiating marijuana use, but rather is mediated by its association with traditional mechanisms of social control.

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2. Greater involvement in religious activities is related to a lower probability of marijuana initiation, net of its relationship with social control measures.
3. Religious youth have fewer deviant peers and more religious peer and adult networks, which in turn is associated with a lower likelihood of marijuana use.
4. The interaction of high levels of religious involvement and strong ties to religious networks will further reduce the likelihood of marijuana initiation.
5. One of the primary deterrents of initiating marijuana use is the likelihood that an adolescent uses religion in making decisions (i.e., level of religious salience).
6. The impact of traditional measures of religiosity (i.e., attendance and networks) is conditional upon the level of religious salience, such that the former are most effective at reducing the likelihood of marijuana use when religious salience is also high.

We test these hypotheses on marijuana initiation, as opposed to frequency of use, for several reasons. First, using onset of use allows us to estimate the influence of the predictors on a novel behavior, thereby avoiding conflation with the stability influence of past behavior. Second, as will be described, many of the theories guiding this research are aimed at explaining the prevention (or facilitation) of certain trajectories of behavior, which can be more directly examined with first marijuana use than frequency of use. Finally, compared to research on the frequency of use, the initiation of marijuana use is understudied in the substance use literature.

SOCIAL CAPITAL AND DEVIANCE

Numerous scholars have highlighted the importance of social integration for maintaining social order. For example, Putnam (2000) argues that the decreasing rate of participation in community organizations is one of the key reasons for increased social disharmony in America. Underlying this theoretical perspective is the concept of social capital, which scholars have generally defined as a resource upon which individuals can draw due to their location within social networks. Coleman (1988) outlines the three primary ways in which people benefit from social capital: obligations and expectations (mutual understanding or reciprocity), information channels (increased awareness of opportunities and the actions of others), and the enforcement of social norms (reliance on the previous two to focus energy towards communally-defined prosocial activities).

While not explicitly founded under the name “social capital,” this integrationist framework has been used to develop one of the most often employed theories of deviance: social control (Hirschi, 1969). This theory argues that the more embedded and attached individuals are to conventional institutions and people, the less likely they are to deviate from established norms because doing so would be deleterious to maintaining these relationships. Sampson and Laub (1993) have most directly integrated the theories of social capital and social control by showing that persons are less likely to commit crimes when they have formal connections to mainstream social structures (e.g., marriage and employment). When investigating adolescent outcomes, this theory has usually been operationalized as the extent of connections to parents and school, with numerous studies finding a direct relationship between low family closeness, low parental monitoring, and low commitment to school on the one hand and increased rates of delinquency, including marijuana use, on the other (Aseltine, 1995; Bailey & Hubbard, 1990; Bryant, Schulenberg, O’Malley, Bachman, & Johnston, 2003; Ramirez et al., 2004). Though grounded in Hirschi’s (1969) original formulation, social control has gone beyond his initial explanation to encompass connections to people and behaviors associated with traditional institutions that deter negative adolescent behaviors. Here, we use the term “social control” to refer to this broader research tradition.

From this perspective, many scholars argue that any direct relationship between individual religiosity and deviance is spurious because religion’s true influence is on increasing one’s embeddedness in mechanisms of social control, which are regarded as the “true” cause of reduced rates of delinquency. For example, in a study of Oklahoma youth, Cochran and colleagues (1994) found that once measures of parental monitoring, family closeness, and commitment to school were included in the model, religious attendance and importance became a nonsignificant predictor of illicit drug use. Similarly, Bahr and colleagues (1993) found that parental monitoring completely mediated the impact of religious importance on adolescent substance use. These studies suggest that religion may not have any direct impact on the likelihood of initiating marijuana use, but rather may be mediated by its association with traditional mechanisms of social control (Hypothesis 1).

RELIGION, SOCIAL CAPITAL, AND DEVIANCE

Despite these null findings, other studies that regard religious social capital as a form of social control have found that religiosity is negatively related to substance use (Bjarnason, Thorlindsson, Sigfusdottir, & Welch, 2005; Chu, 2007; Regnerus & Elder, 2003). In a review of the potential mechanisms by which religion may impact adolescent behavior, Smith (2003c) noted that religion may increase social capital in two primary ways. First, it can provide more nodes of social control (i.e.,

extra monitors), and second, it often brings adolescents into more positively oriented social networks (i.e., differential association with nonusers [Sutherland, 1955]).

In support of the first pathway, Smith (2003b) found that adolescents who were more involved in religious activities were more likely to have a greater level of network closure between their parents, their friends' parents, and their teachers than adolescents who were less involved. Thus, greater participation in religious activities may inhibit deviance by providing a more extensive and connected set of watchful eyes to monitor adolescents' whereabouts and activities. In support of this theory, using the nationally representative *Monitoring the Future* data, Smith and Faris (2002) showed that fewer frequent church attendees had ever tried marijuana than nonfrequent attendees. Similarly, Brownfield and Sorenson (1991) found that religious affiliation and higher levels of church attendance had a significant negative effect on the likelihood of marijuana use (see also Amey, Albrech, & Miller, 1996; Foshee & Hollinger, 1996). Hence there is evidence that greater involvement in religious activities is related to a lower probability of marijuana initiation (Hypothesis 2).

Regarding Smith's (2003c) second theorized pathway, studies have also found religiosity's impact on reduced substance use to work through the types of networks adolescents form (i.e., more religious youth are less likely to have deviant friends and more likely to form ties with morally upstanding adults). It is not only the number or structure of ties but the norms and content of the networks that matter because the adolescents' continued participation in these networks is dependent upon behaving according to their nondeviant norms. Using four waves of data, Burkett and Warren (1987) found that religious adolescents were more likely to have networks consisting of fewer substance using peers, thereby leading to lower likelihoods of marijuana use (see also Benda & Corwyn, 2001; Marcos, Bahr, & Johnson, 1986).¹ These studies support the theory that religious adolescents are less likely to be involved in deviant networks, but no studies have explicitly tested the hypothesis that religion's negative influence on substance use comes from its influence on heightened interaction with religious peers and nonparental adults (rather they assume a positive network from the absence of a negative one). Still, the available evidence and theory support the expectation that religious youth should have fewer deviant peers and more religious peer and adult networks, which in turn should lead to less substance use (Hypothesis 3). Further, because the more adolescents participate in religious activities the more likely they are to develop more extensive religious networks, we expect a significant interaction between the two, such that religious involvement will further reduce the likelihood of marijuana initiation when combined with religious adult networks (Hypothesis 4).

EXPANDING THE SCOPE: RELIGIOUS SALIENCE

Although this extant research has been valuable for establishing several important connections between religion and adolescent substance use, we believe that thinking of religion solely as a locus of social capital is rather limited. Primarily, this treatment has confined religion's potential influence to more mechanical modes of social control. Certainly these forces are part of the story. But apart from its potential influence on social capital, Smith (2003a) also argues that religion may provide a structured set of beliefs, and that "youth may internalize these moral orders and use them to guide their life choices and moral commitments" (Smith, 2003c, p. 20). Thus, we contend that a key factor in determining religion's impact on adolescent behavior may not be simply the level or even nature of their ties (i.e., social capital); rather religion's influence might be more dependent upon the extent to which adolescents internalize these directives, which we refer to as the degree of religious salience.

Conceptually, the inclusion of religious salience into the model predicting adolescent behavior entails more than simply adding another measure of religiosity; rather, it implies a distinctly different approach to the manner in which religion is theorized to operate in adolescent lives. Cognitive anthropologists Strauss and Quinn (1997) have argued that experiences can shape deeply held cognitive schemas, which are then consciously or unconsciously used to interpret situations and to guide decisions. Similarly, extending Bourdieu's (1984) theory of habitus, Andrew Sayer (2005) contends that morals are at the center of these schemas, such that people often determine the appropriateness of behaviors on moral grounds, either consciously or tacitly. For example, adolescents who attend religious services frequently and have internalized their accompanying moral order are likely to see substance use as something "not for the likes of us." Again, this is not to discount the importance of external social structure, but rather to contextualize its influence on behavior through its impact on internalized cognitive structures (see also Lizardo, 2004).

One of the difficulties in utilizing this framework, however, is determining how to conceptualize and measure an internal cognitive structure. For this study we rely on the definition of salience developed by Stryker's (1991) identity theory. According to this conceptualization, salience is the likelihood that an individual will act in accord with certain expectations across various situations. According to Stryker and Serpe (1994), when an identity has a high internal salience, people are likely to interpret situations according to the established norms of this identity and therefore use that identity in guiding their actions. We are not making the argument that religion is always a salient identity nor that it always operates exactly as specified by identity theory. Rather we see this definition of salience as a useful and tangible description of the way in which the abstract idea of cognitive schemas outlined above may operate in people's lives.

This theoretical framework suggests several hypotheses concerning the influence of religion on the likelihood of adolescent marijuana use. First, one of the primary forces in predicting the initiation of marijuana use should be religious salience, such that the more likely an adolescent is to use religion in making decisions the less likely she will be to use marijuana (Hypothesis 5). Second, the impact of traditional measures of religiosity (i.e., attendance and networks) may be conditional upon the level of religious salience. We predict that a significant interaction will exist between religious salience and both religious attendance and religious networks, indicating that the influence of the latter on reducing the likelihood of marijuana use is most effective when religious salience is also high (Hypothesis 6).

METHOD*DATA*

The data for this study come from the National Study of Youth and Religion (NSYR), a nationally representative telephone survey of 3,290 U.S. English and Spanish speaking teenagers, ages 13 to 17, and their parents. The first wave of the NSYR was conducted from July 2002 to August 2003 using random-digit-dial and drawing on a sample of randomly generated telephone numbers representative of all noncellular phone numbers in the United States. Eligible households included at least one teenager between the ages of 13 to 17 living in the household for at least six months of the year. In order to randomize responses within households and to help attain representativeness of age and gender, interviewers asked to conduct the survey with the teenager in the household who had the most recent birthday.

The overall response rate of 57% for the first survey is lower than desired, but it is typical of nationally-based surveys using similar methodologies (Brick, Collins, & Chandler, 1997; Curtin, Presser, & Singer, 2005). Potential concerns about response rates can be lessened by further comparisons of the NSYR data with 2002 U.S. Census data and with nationally representative surveys of adolescents—such as Monitoring the Future, the National Household Education Survey, and the National Longitudinal Study of Adolescent Health. These comparisons confirm that the NSYR provides a nationally representative sample of U.S. teenagers ages 13 to 17 and their parents without identifiable sampling or nonresponse biases (for details, see Smith & Denton, 2005).

Beginning in the summer of 2005, a second wave of the survey was conducted. Of the original respondents 2,530 were reinterviewed, leading to a response rate of just under 77%. From the original sample, 3.82% could not be used because of uncompleted surveys, 4.01% refused, 1.76% were ineligible (e.g., being imprisoned, deceased, etc.), and 13.59% could not be found or contacted. A weight is used in all analyses to adjust for the potential bias created from this loss in respondents, as well

as for the original sampling census region of residence, number of teenagers in the household, number of household telephone numbers, and household income.

In addition to its longitudinal nature, several distinctive features of the NSYR made it particularly appealing for the present research. First, it contains extensive measures of all of the pertinent concepts, especially parent-child relationships and religiosity. Second, all adolescents were asked to confirm that they were in a place in the house that prevented parents from overhearing their answers, thereby helping to reduce response bias, especially on particularly sensitive questions, such as marijuana use, religiosity, and parent relationships. Further, using a home-based methodology avoided several of the potential biases inherent in school based samples. Most notably, all noninstitutionalized teenagers were part of the sampling frame, including school dropouts (1.16% of the original sample) and frequent absentees.

ANALYTIC SAMPLE

Because the current analyses addresses marijuana initiation, all those cases who reported any level of marijuana use at Wave 1 are dropped from the sample (i.e., they are not at risk of initiation). Of the 2,530 cases with available data at both waves, 577 (23%) respondents reported some marijuana use at Wave 1 and are therefore eliminated from the current sample, resulting in a base sample of 1,948 cases. Next a list-wise deletion was performed on all of the variables included in the final model, creating a final analytic sample of 1,680 cases.² All descriptive statistics presented in the following section are based on this final sample, and all predictors are from the Wave 1 survey.

MEASURES

MARIJUANA INITIATION

Respondents were asked in both surveys how often, if ever, they used marijuana. All those who reported *never* to this question at both waves are coded as 0. Initiators (coded as 1) are defined as those respondents who reported *never* to the marijuana use question at Wave 1 (74% of the Wave 1 sample) but then claimed any level of use at Wave 2. Of the final analytic sample, 284 (16.9%) cases are classified as marijuana initiators.

TRADITIONAL SOCIAL CONTROL

To address the potential confounding role of traditionally identified indicators of social control, measures for family cohesion, parent monitoring, total adult support, adult network closure, and peer substance use are included in the model. The first two assess the bond to the family, while the level of total adult support and adult network closure are indicators of the extent of nonfamilial monitoring the adolescent may experience. Finally, although Hirschi (1969) argued that attachment to peers

may deter deviant behavior, most other research has shown that participation in delinquent peer groups is associated with breaking away from traditional institutions of social control (Galambos, Barker, & Almeida, 2003; Simons, Chao, Conger, & Elder, 2001).

Family cohesion is an index created from 16 items, from both the parent and child survey, tapping the overall level of closeness in the family (e.g., how often each parent says "I love you," hugs the child, and how close child feels to the parent).³ The Cronbach's α for the scale is .86, with a mean of 3.32 ($SD = .60$). Parent monitoring is a combination of two questions from the parent survey about how much they directly monitor the child's media usage and three questions from the teen survey asking how much the child believes the parent monitors her activities (i.e., what she is doing and with whom). This measure, therefore, assesses both actual controlling behavior and perceived level of monitoring, an approach advocated by Dishion and McMahon (1998) and Stattin and Kerr (2000) to fully capture the extent of parental monitoring. The resulting scale has an α of .64 and a mean of 2.76 ($SD = .70$). Finally, total adult support is a single item measure of how many nonparental adults the respondent can turn to for support or advice. Responses were coded to range from 0 to 15 or more, resulting in a mean of 5.31 ($SD = 3.92$). A full listing of all items used in social control constructs, as they appeared in the survey instrument, is presented in the Appendix.

Respondents were also asked to nominate up to five of their closest friends, followed by a series of questions pertaining to each friend. The measure of adult network closure comes from a combination of three questions, asking if each friend's parents knew the respondent, knew the respondent's parents, and if the respondent's parents knew the friend. The closure measure, therefore, is the average number, out of five, of the respondent's friends who satisfy each criteria, producing a mean of 3.45 ($SD = 1.17$). The peer substance use question comes from one question asking if each named friend "does drugs or drinks a lot of alcohol." The resulting measure ranges from 0 to 5 and has a mean of .34 ($SD = .80$), showing that most respondents report not having any friends who use substances.

RELIGIOUS SOCIAL CONTROL

As previously discussed, religion is often treated as another form of social control, most often operationalized through participation in religious activities and social networks. We measure the extent of religious activity using an index of three questions. The first two come from questions asking how frequently the respondents attend church services and religious youth group meetings (defined as an organized group of young people that meets regularly for social time together, prayer, or to learn more about their religious faith), each of which had response options of *never*,

almost never, a few times a year, many times a year, once a month, 2 to 3 times a month, once a week, and more than once a week. The third component of the religious activity scale measures how many extra-curricular activities the respondent reported participating in that also are sponsored by a religious organization (specifically being directed not to count official religious worship services). Because the variables are not continuous, a polychoric principal components analysis was used to both generate the scale and assess its reliability. This method uses a polychoric correlation matrix to perform the principal components analysis, and then generates a scale containing the values from the first eigenvector. For this index of religious activity, the first factor accounted for 71% of the original variance, had an eigenvalue loading of 2.13, and has a mean of .22 ($SD = 1.22$).

We also include three separate measures of religious networks. First, after answering the question about total adult support, respondents were asked how many of those adults were part of a religious congregation or organization with which the respondent was also involved. From this question a proportion is created representing the amount of the respondent's total adult support that comes from religious involvement, which has a mean of .42 ($SD = .41$). The next two measures come from the series of questions about each friend nomination, with the first being if each friend is religious (mean = 4.06, $SD = 1.50$) and the second being if the friend was also involved in a religious organization with the respondent (mean = 1.37, $SD = 1.69$). These three items more accurately address the hypothesis that religion leads adolescents into prosocial networks than previous studies because they directly measure the level of religiosity in both the respondent's adult and peer networks, whereas most previous studies have assessed the deviance of peer groups.

RELIGIOUS SALIENCE

As noted, one of the key contributions of this study is the reformulation of the religious influence model to include not only social controls but also internalized motives for action. An index consisting of three items is used to assess the extent to which respondents use religious beliefs when making decisions. The first question asks "If you were unsure of what was right or wrong in a particular situation, how would you decide what to do? Would you most likely—do what made you feel happy; do what would help you to get ahead; follow the advice of a parent or teacher, or other adult you respect; or do what God or scripture tells you is right?" This question directly asks the respondents to choose how they most often address a potential problem (i.e., what moral framework they use when interpreting difficult situations). Before being combined with the other items this variable is coded dichotomously with "what God or scripture tells you is right" equal to 1.

The other two items ask how important or unimportant religious faith is in shaping how the respondent lives her daily life and in making major life decisions, each of which further taps into how likely a person is to base decisions on religious beliefs. As with the scale of religious involvement, a polychoric principal components procedure is used to combine these noncontinuous measures. In this case the first vector accounts for 79% of the original variance, has an eigenvalue of 2.35, and a mean of .13 ($SD = 1.27$).

CONTROLS

Several demographic variables are included in the model to control for potential confounding influences on both the independent and dependent measures (see Regnerus & Smith, 2005 for review of demographic influences on religious measures and Kandel, 1980 for review of relationships with substance use). Three family level measures are included. First is a dummy variable representing two-parent families (79%). Next is a self reported, ordinal measure of household income that ranges from 0 (less than \$10,000) to 11 (more than \$100,000) in \$10,000 increments and has a mean of 6.56 ($SD = 3.18$). Finally, a set of dummy variables is included representing the highest parent education in the household (high school degree, the modal category [31%], is used as the reference category).

For the respondents, self reported measures of age (mean = 15.31, $SD = 1.39$), gender (female = 54%), and race (White, the modal category [70%], is used as the reference category) are included. Finally, we follow Steensland and colleagues' (2000) classification to determine the primary religious tradition reported by the respondent. Not religious (9%) serves as the reference category, while conservative Protestant is the modal category (33%).

ANALYTIC STRATEGY

Because the hypotheses of this project deal in part with the magnitude of various predictors' influence, each of the continuous measures (age, family cohesion, parent monitoring, total adult support, religious involvement, religious adult support, and religious salience) were all centered and standardized (i.e., mean = 0, $SD = 1$) before model estimation. This transformation will provide a common metric for interpretation and comparison. To test each of the proposed hypotheses, we estimate a series of logistic regressions.⁴ First, to assess the simple relationship between marijuana initiation and all predictor variables, we estimate bivariate logistic regressions of marijuana initiation on each. Next, we enter each of the groups of variables into successive models. These nested models will show which measures operate through the others (i.e., if traditional social control is correct in its assumptions, then any significant direct effects of religious measures should be negated when both are included in the model [Baron & Kenny, 1986]). Finally, we

estimate three additional models, which include the full set of independent measures and each of the predicted interaction effects (i.e., religious involvement and religious social control, religious involvement and religious salience, religious social control and religious salience). We also visually present predicted probabilities for both the main and interaction effects to show more clearly the relationship between the key concepts and the likelihood of initiating marijuana use.

RESULTS

The first column of Table 1 shows the logistic regression coefficients for each of the predictor's bivariate relationship with marijuana initiation. Somewhat surprisingly, very few of the demographic control variables are significant. Most notably, gender, age, and race are not significantly related to the likelihood of first marijuana use. However, as family income increases, so does the likelihood of marijuana initiation, and adolescents who identify as conservative Protestant, Jewish, and Mormon are all less likely to start using than those who identify as not religious. In terms of the social control and religiosity measures, all of the predictors operate in the expected direction. Higher levels of parent monitoring, religious involvement, and religious salience are all significantly related to lower rates of marijuana initiation. Relationships developed through religious involvement with peers and adults are significant negative predictors as well, whereas having more substance using friends is linked to a greater risk of initiation.

Each of the subsequent columns progressively adds a group of predictor variables, with the first including all of the demographic control variables. Both Models 1 and 2 reveal relatively similar results to the bivariate regressions, although being in a two parent family now significantly reduces the likelihood of marijuana initiation. (This analytic relationship was obscured in the bivariate results by the correlation between family structure and income.) The introduction of the religious social control measures in Model 3, however, creates some major differences. First, the religious affiliation predictors appear to be completely mediated by the inclusion of the indicators of religiosity, as identifying with any religious tradition is no longer significantly related to marijuana initiation in this model. Similarly, the parent monitoring coefficient becomes nonsignificant. In further analyses (results not shown) in which each of the religious social control measures was added individually, it appears that this mediation mainly operates through the amount of adult support garnered through religious involvement because the parent monitoring coefficient only becomes nonsignificant with its inclusion. These findings largely disconfirm the hypothesis that religion's association with marijuana initiation will be completely mediated by traditional measures of social control (Hypothesis 1). Many of the typical social control measures (i.e., ties to parents and other adults) do

TABLE 1
LOGISTIC REGRESSION COEFFICIENTS ON MARIJUANA INITIATION (N = 1,680)

Predictor ^a	Bivariate ^b	Model 1	Model 2	Model 3	Model 4
Demographic Predictors					
Family structure	-.187	-.489*	-.464*	-.426*	-.369
Income	.067*	.105**	.094**	.090*	.080*
Highest ed in HH (HS Degree)					
No HS degree	.024	.216	.237	.200	.185
AA/vocation degree	.156	.125	.161	.218	.162
BA/BS degree	.210	-.080	-.016	-.010	-.005
Higher degree	.254	-.105	-.027	-.046	-.085
Age	.013	-.020	-.136	-.139	-.092
Race (White)					
African American	-.093	-.241	-.200	-.124	.102
Hispanic	-.285	-.388	-.291	-.265	-.223
Other	-.315	-.406	-.432	-.401	-.393
Female	.037	.061	.067	.038	.104
Religious affiliation (not religious)					
Conservative Protestant	-.841**	-.843**	-.676*	-.181	.072
Mainline Protestant	-.209	-.381	-.274	.216	.360
Black Protestants	-.463	-.239	-.143	.384	.482
Catholic	-.156	-.115	-.033	.454	.553
Jewish	-1.560*	-1.780*	-1.641*	-1.376	-1.403
Mormon	-1.958**	-2.090**	-1.830**	-1.280	-.953
Other Religion	-.632	-.577	-.363	.067	.223
Not determinate	-.918	-.848	-.775	-.280	-.193
General Social Control Predictors					
Family cohesion	-.101		-.055	-.042	-.019
Parent monitoring	-.308***		-.213*	-.190	-.161
Adult support	-.005		.008	.016	.016
Adult network closure	.015		.014	.068	.066
Peer substance use	.280***		.202*	.200*	.196*
Religious Social Control Predictors					
Religious involvement	-.203**			.063	.210
Religious adult support	-.351***			-.266**	-.199*
Religious peers	-.134**			-.127	-.099
Religious organization friends	-.116*			-.025	-.005
Internalized Religion					
Religious salience	-.495***				-.453***
Constant		-1.360***	-1.629***	-1.791***	-2.139***
R-Squared ^c		.059	.076	.095	.115

Note: Analyses include survey weight.

^aReference group in parentheses. ^bAll bivariate coefficients represent logistic regressions run on each predictor separately.

^cCalculated with the Cragg and Uhler method.

*p < .05, **p < .01, ***p < .001. Two-tailed test.

not override the influence of religious indicators on marijuana initiation, although peer substance use does remain a significant positive predictor.

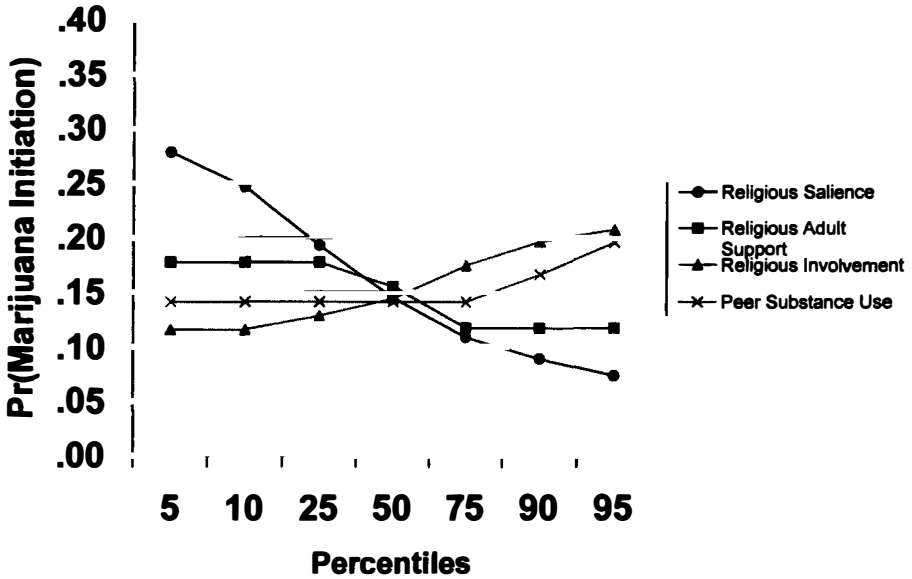
Model 3 further shows that many of the religious social control measures are not directly related to marijuana initiation. Specifically, religious involvement, number

of religious peers, and number of friends from shared religious organizations are all nonsignificant predictors when other pertinent variables are controlled. Additional analyses (results not shown) indicate that much of the mediation works through each of these measure's relationships with religious adult support. When the proportion of religious adults an adolescent can turn to for support is included in the model with any of the other three measures, they each become nonsignificant. Thus, it appears as though the strongest impact of religion as a mechanism of social control is the fostering of positive relationships with nonparental adults, which is especially interesting because no previous study has included an indicator of this influence when predicting adolescent substance use. Taken together these findings provide mixed support for Hypothesis 2, postulating the direct influence of religious involvement on limiting marijuana initiation, and Hypothesis 3, which predicted the direct impact of religiosity would be mediated by its relation to religious networks. The results suggest that religion's influence on deterring marijuana initiation is not directly from increased involvement but rather stems specifically from the types of adult networks adolescents form through participation in religious organizations.

Finally, Model 4 is relatively similar to Model 3, except the strong significant influence of religious salience is apparent. Both in magnitude and significance, religious salience appears to have the strongest impact on the likelihood of marijuana initiation, confirming Hypothesis 5 (i.e., religious salience is a primary influence in preventing the initiation of marijuana use). To further illustrate the relative magnitude of the significant predictors in this final model, Figure 1 displays the predicted probabilities at different levels of each variable with all other predictors set to their mean. The direct effect of religious involvement was marginally significant ($p = .055$) in the final model, which, combined with its theoretical importance, is why it is included in the figure. Figure 1 shows that religious involvement and religious adult support have virtual mirror influences on the likelihood of first marijuana use. *Ceteris paribus*, being above the median on religious involvement actually increases the probability of marijuana initiation, whereas being above the median on religious adult support reduces it. Yet, among all of these predictors it is clear that a difference in religious salience has the most dramatic net impact on the probability that an adolescent will begin using marijuana. In fact, those respondents at the 95th percentile of religious salience have a 7% chance of initiating marijuana use, compared to those at the 5th percentile who have a 28% chance. This change of 21 percentage points is more than double that yielded by any of the other predictors using the same contrast (religious involvement = 9 points; religious adult support = 6 points; peer substance use = 5 points). Even though it does not completely mediate the effects of the other social control variables, religious salience does appear to be the most influential direct deterrent of first marijuana use.

FIGURE 1

PREDICTED PROBABILITIES OF MARIJUANA INITIATION BY RELIGIOUS SALIENCE, RELIGIOUS INVOLVEMENT, AND PROPORTION OF RELIGIOUS ADULT SUPPORT (N = 1,680)



INTERACTIVE MODELS OF RELIGIOUS INFLUENCE

In addition to their direct effects, we also predicted that measures of religion may interact in influencing the likelihood of marijuana initiation. Table 2 presents the findings from logistic regression models that include each of the pertinent interaction terms (only the main effect components and interaction terms are displayed, although the models also include all of the predictors from Model 4 in Table 1). Of the three hypothesized relationships, only the interaction terms including religious involvement are significant (and shown). Neither the influence of religious salience nor religious networks (i.e., peers or adult support) is conditional on the level of the other, partially disconfirming the hypothesis predicting an interaction between these factors (Hypothesis 6).

There is, however, a significant, negative interaction between religious salience and involvement, such that when an adolescent is highly involved in religious services and activities and has internalized religious beliefs to a high degree, she will be especially unlikely to begin using marijuana. This relationship is illustrated in the predicted probability plot in Figure 2. This plot shows that when religious salience is low, higher levels of religious involvement significantly increase the probability of marijuana initiation.⁵ Though what is driving this positive relationship is not apparent, it is clear that the influence of high religious salience is not entirely

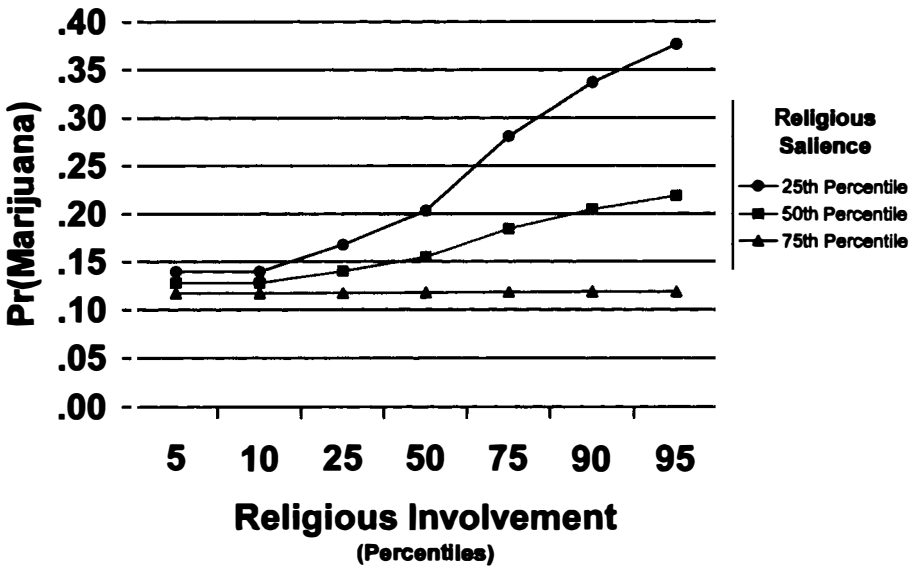
TABLE 2
LOGISTIC REGRESSION INTERACTION EFFECT COEFFICIENTS ON MARIJUANA INITIATION (N = 1,680)

Predictor	Model 5	Model 6	Model 7
Main Effects			
Religious involvement	.249*	.229*	.769**
Religious adult support	-.191	-.135	-.202*
Religious peers	-.103	-.106	-.129*
Religious salience	-.445***	-.457**	-.449***
Interaction Effects			
Religious involvement * religious salience	-.252*		
Religious involvement * religious adult support		-.273**	
Religious involvement * religious peers			-.131*
Constant	-1.726***	-1.863***	-1.688***

Note: Analyses include survey weight. All interaction terms were entered into regression with component main effect terms and all other variables from the full model (Model 4 – Table 1).
 *p < .05, **p < .01, ***p < .001. Two-tailed test.

FIGURE 2

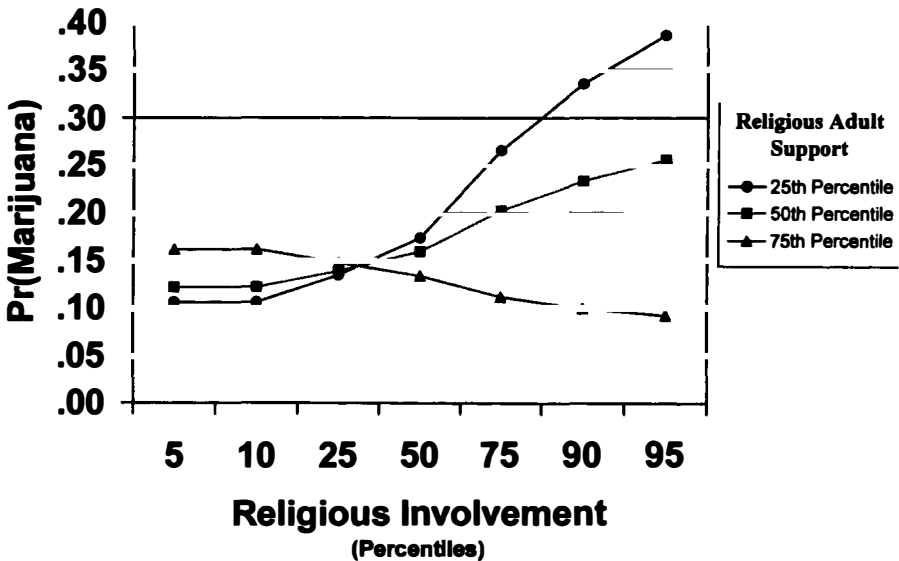
PREDICTED PROBABILITY OF MARIJUANA INITIATION BY RELIGIOUS INVOLVEMENT AT THREE LEVELS OF RELIGIOUS SALIENCE (N = 1,680)



dependent on the level of religious involvement. Even among those who are less involved in religious activities, adolescents who are most likely to use religion in making decisions are consistently the least likely to begin using marijuana. The difference between these groups is especially prominent among those who are moderately to heavily involved in religious activities as the difference in probabilities between the 25th percentile and 75th percentile groups of religious salience is significant at and above the 25th percentile of religious involvement.⁶ This significant difference in probabilities demonstrates that religious salience is especially important for discriminating initiators from noninitiators among those adolescents who are at least minimally involved in religious activities or organizations.

A similar pattern emerges in the interaction between religious involvement and both religious adult support and religious friends, supporting the hypothesis that the interaction between the two would be especially effective in reducing the likelihood of marijuana initiation (Hypothesis 4). Again the interaction terms are negative and significant, indicating that when either of these variables and religious involvement are at high levels, the likelihood of marijuana initiation is especially reduced. Both interactions reveal similar findings; thus, Figure 3 only plots the interaction between involvement and religious adult support. This figure again shows a surprising positive

FIGURE 3
PREDICTED PROBABILITY OF MARIJUANA INITIATION BY RELIGIOUS INVOLVEMENT AT THREE LEVELS OF RELIGIOUS ADULT SUPPORT (n = 1,680)



relationship of religious involvement, such that when a respondent does not have any nonparental adults to turn to in her religious organizations, being more involved in religious sponsored activities increases the probability of marijuana initiation.⁷ Conversely, when they have many adults to turn to for support, being more highly involved with religious activities slightly decreases this probability, most likely because these types of relationships are more likely to develop and be stronger when the adolescent is more heavily involved in religious organizations.⁸ This connection offers support to the idea that religion's influence as a deterrent of substance use operates, at least partly, through its ability to expose adolescents to more potential monitors and pro-social adult and peer networks. Yet, it simultaneously contradicts the hypothesis that religion is unimportant once other social control measures are accounted for because it was ties to religious adults and friends that were the significant deterrent, even when measures of parent relationships, total adult ties, network closure, and deviant peers were included in the prediction.

DISCUSSION AND CONCLUSIONS

The objective of this study has been to explore in greater detail the ways that religion influences marijuana initiation among U.S. adolescents. In particular, we sought to assess the adequacy of a social control or social capital account of religious influence in light of theoretical work that highlights the importance of belief salience and internalization as motives for action (Smith, 2003a). We predicted, in contrast to much previous research, that religious salience would be the most important factor for predicting marijuana initiation. This hypothesis was confirmed; the net effect of religious salience is more than twice that of any other individual predictor. Conversely, traditional measures of social control such as parental monitoring, while indeed correlated with lower probabilities of initiation, became nonsignificant in the multivariate models, suggesting that it is not one of the mechanisms through which religious involvement directly influences marijuana initiation. Even peer use—widely regarded as a decisive influence on adolescents—turned out to matter much less than religious salience.

Another important net effect that emerged in the analysis was that of religious networks. In contrast to the notion that religion reduces the likelihood of deviance through the provision of more monitors or fewer negatively influential peers, the results here suggest that it is not the number of adults or just the deviance of peers but rather the source of those monitors and friends that matters. Without more specific data on these networks, we cannot definitively say whether they are effective because of their structural characteristics or because of the substantive content (i.e., shared beliefs) contained in them. However, while not decisive, the fact that adult network closure—one of the most common mechanisms posited to enhance the

influence of religious networks—is unrelated to marijuana initiation suggests that it is the content rather than the structure of adult ties that is most important. This interpretation is consistent with the idea that religious organizations provide not only community, but moral community (Smith, 2003c), and that it is this kind of community that matters for influencing marijuana initiation.

We further hypothesized that the effects of religious salience, networks, and involvement would be mutually conditional. This claim was mostly supported, though no significant interaction was observed between salience and religious networks. The relationship between salience and involvement was found to be contingent in two ways. First, salience matters most among those who are most religiously involved, suggesting that the influence of subjective belief is much more powerful when reinforced by a community of believers engaged in shared religious practices. Second, as we noted above, when stripped analytically of its subjective importance, involvement in religious organizations and activities actually increases the likelihood that an adolescent will become a marijuana user. In fact, at low levels of religious salience, high levels of involvement more than double the probability of initiating use. This positive association of high religious involvement in the absence of subjective beliefs suggests the ineffectiveness of simple institutional participation for deterring negative behavior. That is, the control stems from the content not the contact.

The plausibility of this interpretation is strengthened by the similar relationship between involvement and religious adult support. We saw in Model 6 and Figure 3 that religious involvement is only beneficial when an adolescent has developed adult support networks in the religious organization(s) in which he or she is involved. Similarly, religious adult support is only efficacious for young people who participate to a greater-than-average degree in religious activities. The moral community provided by religious involvement appears to be effective in deterring marijuana initiation only when it is a site of active engagement with religious adults. Future research, therefore, should seek to understand how adolescents form meaningful connections (relationally and subjectively) with religion, as well as how and why certain adolescents continue to participate in religious activities without developing such bonds.

Taken together, these results suggest that involvement in religious organizations is hardly a generic form of “social capital” that can be prescribed to reduce teen drug use. We find that if a young person does not internalize religious teachings (to the point they are used as a basis for making decisions) or does not form intergenerational connections based around shared religious beliefs, involvement in religion may simply provide more opportunities to begin using marijuana. After all, participation in institutions alone can contribute to any sort of outcome—prosocial

or otherwise. These findings are consistent with theoretical work that emphasizes the ways “cultural” factors (e.g., individual beliefs or shared moral order) and “social structural” factors (e.g., institutional engagement or the structure of networks) combine to produce social outcomes (see Vaisey, 2007). “Religion” is not a single thing; it is composed of a variety of individual and collective ideological and relational components that operate in different and highly contingent ways.

Of course, the results of a single study cannot suffice for understanding the linkages between religion and drug use in general terms. For one, we cannot necessarily generalize the specific relationships found here to all forms of deviance initiation, nor to other drug-related outcomes like, for example, increasing or decreasing use over time among existing users. Yet, we consider the examination of onset of substance use to be one of the key strengths of the current study. Because initiation is by definition engagement in a novel activity, it may be more likely to be influenced by the consultation of conscious beliefs of the kind religion provides or by relationships to morally meaningful communities. Future research should be aimed at testing the direct and interactive relationships discovered in this study on other forms of substance use and types of deviant behavior to investigate the generalizability of the identified pathways.

There are notable limitations of this study that should be addressed. Although similar to other surveys and representative of the target population, the response rate of the NSYR may create potential bias. The amount of missing data also gives cause for concern. As noted, numerous tests were run to test for bias and all confirmed the robustness of the significant associations. Still, replications of these analyses on other samples would be useful for confirming the findings. Furthermore, the design of this study and our interpretation of the results are also based on the assumption that religious organizations would prefer that adolescents not use drugs and that this is an issue these organizations care about. In 21st century America, this assumption is unproblematic. But the connections between religious salience, moral community, and marijuana initiation may be different in different religious and cultural contexts. This study, however, attempts to disentangle, in the contemporary American context, many of the mechanisms that have elsewhere been collapsed into the too-broad term “religiosity.” Future research will have to determine how these different mechanisms operate in other populations and social contexts and with regard to other behaviors.

Despite these specific limitations and the inadvisability of basing larger claims on the results of any single study, our broader objective has been to provide researchers with more accurate ways of thinking about how religion might influence (non-)participation in deviant behaviors. For scholars interested in understanding deviance, this would seem to be of particular importance because (at least in this

case) the religious variables provided nearly all of the explanatory power. Far from being a simple “control,” the religious variables were central to explaining why some teenagers begin smoking marijuana while others do not. These findings—and perhaps more importantly the theoretical work that inspired it—suggest that it might be useful to begin thinking of religious influences as something analytically distinct from generic social capital or social control. Rather than regarding religious organizations as particularly abundant sources of networks or prosocial monitors (though they certainly are that) it may also be analytically profitable to think of religious organizations as sources of “spiritual capital”—moral beliefs and meanings at both the individual and community level that contribute to the creation of prosocial outcomes (Woodberry, 2005). More research is needed to determine whether or not a concept like spiritual capital might be generally useful. But this study suggests that if we continue to think about religion simply in terms of “social capital” and “social control” we may be missing something essential for understanding human behavior.

APPENDIX: SOCIAL CONTROL CONSTRUCT MEASURES

FAMILY COHESION

How often, if at all, does your [M/F]:

- A. praise and encourage you?
- B. hug you?
- C. tell you that (she loves/they love) you?

How often do you talk with your [M/F] about personal subjects, such as friendships, dating, or drinking?

First, how close or not close do you feel to your [M/F]?

Generally, how well do you and your [M/F] get along?

How often, if at all, do you and your [M/F] have fun hanging out and doing things together? [May include others, not only the two.]

How close do you feel to [your teen]?

How close do you think your spouse/partner feels to [your teen]?

MONITORING

How much do you monitor [your teen]’s television and movie watching?

How much do you monitor [your teen]’s Internet use?

How much (do/does) your [M/F] monitor:

- A. your music, television, and movie watching?
- B. who you hang out with?

ADULT NETWORKS

Roughly how many TOTAL ADULTS, if any, do you have in your life that you can turn to when you need support, advice, or help—not including your parents?

RELIGIOUS ADULT SUPPORT

Of those adults that you can turn to, how many, if any, of them are part of a religious congregation or other religious group that you are involved in?

NOTES

- ¹ Tests of various model specifications indicated that this relationship was more accurately described as social selection (i.e., the types of friends adolescents choose) than as social learning (i.e., behaviors learned from peers).
- ² The amount of cases eliminated in the list-wise deletion is a potential concern. We ran all of the models using imputed data, where possible, to increase the analytic sample to 1,843 cases. The results, in terms of significance, of these tests were exactly similar to those using the list-wise sample (results available upon request). Therefore, we use the nonimputed measures as in this case they provide more conservative estimates for a majority of the variables.
- ³ The 16 items are from eight questions asked about each parent individually, thus the scale for respondents in single parent families consisted of eight items (based on the present parent). The scales for single parent and two parent families were then combined, similar to Stattin and Kerr (2000).
- ⁴ Because the sample includes only those that reported no marijuana use at Time 1, no control for Time 1 marijuana use is necessary.
- ⁵ Further decomposition showed that the slope of the 25th percentile line is significantly greater than zero (Aiken & West, 1991).
- ⁶ The significance of the difference in predicted probabilities between the percentile groups of religious salience at each level of religious involvement was calculated through bootstrapping (500 repetitions) the difference between each probability (results available upon request).
- ⁷ The 25th percentile of the proportion of religious adult support corresponds to having 0 religious adults in one's network, whereas the 75th percentile represents a fully saturated religious adult support network.
- ⁸ The higher probability of marijuana initiation for adolescents in the 75th percentile of religious adult support at lower levels of religious activity is surprising but should be interpreted with caution as this difference is not statistically significant (based on the bootstrap method). Further, there are very few ($n = 37$) respondents who are at or above the 75th percentile on religious adult support and below the 25th percentile on religious involvement, making this comparison somewhat outside the empirical range.

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