The Moral Community Divide: Underage Marijuana Use Across Religious Contexts

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Compared to individual-level research on religion and marijuana use, much less research has been conducted to investigate how the overall religious context of a geographic location may influence marijuana use during adolescence and early adulthood. Using multilevel analyses on two waves of the National Study of Youth and Religion (NSYR) merged with county-level variables from the U.S. Census and the Religious Congregations and Membership Study (RCMS), this study finds that a county's higher Catholic population share is negatively associated with underage marijuana use frequency even after controlling for a wide range of individual and county-level variables. Besides being robust, the Catholic contextual effect on marijuana use is also diffusive, influencing both Catholic and non-Catholic youth who live in the same county. This study highlights the importance of viewing religious influence on substance use as a contextual, cultural force across different kinds of religious moral communities.

Keywords: religious context, marijuana use, adolescents, young adults.

INTRODUCTION

Marijuana use has long been at the center of public debate in the United States. The federal law has criminalized marijuana by classifying it as a Schedule I drug, suggesting that marijuana has potential for abuse and addiction. Research has shown that marijuana use is also linked to some health problems such as impaired fetal growth (Zuckerman et al. 1989), short-term residual neuropsychological impairment (Pope and Yurgelun-Todd 1996), and lung cancer (Mehra et al. 2006).

Although the health consequences and medicinal value of marijuana use are subject to debate, recreational marijuana use had been regulated and penalized in the United States until at least 2012. This discrepancy has arguably made marijuana use one of the most popular deviant conducts. Many adolescents and young adults have experimented with marijuana, so much so that marijuana use has become a "normal" part of growing up in America (Room et al. 2009). According to a recent study, nearly 50 percent of Americans born since 1960 have experimented with marijuana before reaching the age of 21, a behavior considered illegal even in those few states where recreational marijuana use is allowed (Room et al. 2009). Data published in a related study showed that a quarter of U.S. adolescents were frequent marijuana users (Schulenberg et al. 2005).

In the face of findings that show the continued and growing use of marijuana among the youth in contrast with its legal and health implications, many sociologists seek to learn how religion, one of the major social institutions where important values and norms on substances are created and transmitted, is related to underage marijuana use. When it comes to marijuana, different religious denominations hold varying stances on its use. Historically, conservative Protestant denominations have taken a very prohibitive stance regarding the use of marijuana, even for situations claimed to be medical. Some conservative Protestant leaders argue that using marijuana is sinful as it keeps one's body and mind from loving God, violating the message in biblical teachings such as Mark 12:30: "Love the Lord your God with all your heart and all your soul and all your mind and all your strength" (Rupert 2018). These conservative Protestant leaders not only call for comprehensive prohibition of marijuana use among their own congregants, but are also actively involved in local and national political campaigns against expanded legalization of medical marijuana (Strode 2016).

In contrast, Catholic and mainline Protestant denominations tend to take a more tolerant stance toward marijuana use (Jones, Cox, and Navarro-Rivera 2013). In the case of medical marijuana, the Presbyterian Church (USA), United Methodist Church, and United Church of Christ were among the first to endorse the legality of its use (Bosch 2007). As for recreational marijuana, some Catholic leaders maintain that individuals should be free to exercise their own discretion for its use, while still considering recreational marijuana consumption sinful. For instance, the Catechism of the Catholic Church states that "God willed that man should be 'left in the hand of his own counsel,' so that he might of his own accord seek his Creator and freely attain his full and blessed perfection by cleaving to him." In other words, God does not force one to love him and abstain from using marijuana. Rather, it is up to the individual to freely make one's personal choice (Christiansen 2017).

When different religious denominations with varying values toward marijuana avow mixed directives about its use, one must ask what might be the implications of marijuana use on youth, or more specifically, on local youth in various geographic areas. Although religious teachings and values tend to be transmitted to members within a specific religion, they may have the potential to influence an entire community. This is more likely to occur when members of a specific religion account for a large proportion of the local population, making it more likely for members from that religion to be frequently seen and heard in the community. Consequently, some of the values and norms of that religion may eventually spread to community members from other religions through everyday contacts, such as going to the same school, working at the same place, living in the same neighborhood, or even having shared family members. This situation poses interesting questions when considering the impact on the community of the use of marijuana. For example, what might happen to one's marijuana use behavior when an area has a high population share of conservative Protestants who oppose marijuana use? Or, when an area has a high proportion of religious denominations that view marijuana use with a more permissive stance, will such a view lead to more underage marijuana use in that area? And, will these conservative Protestants be more likely to become eventual users of marijuana? These and related issues are examined in this study.

Somewhat parallel scenarios might also exist. For example, a predominantly Catholic religious context might be associated with less marijuana use, while a conservative Protestant religious context might do the opposite. According to civic community theory (Beyerlein and Hipp 2005; Putnam 2007), when an area has a higher population share of civically engaged religious denominations such as Catholics, more collective efforts might be enacted to effectively resolve social problems in the community such as that of illicit marijuana use. In contrast, when religious denominations that emphasize network closure and other-worldly values dominate an area, the community may suffer from a lack of collective efficacy and a wide range of undesirable outcomes, such as higher mortality rates (Blanchard et al. 2008) and higher crime rates (Beyerlein

and Hipp 2005). These issues are of particular interest because they identify and fashion the principal focus of the study, as will be examined in the "Literature Review" section that follows.

Before proceeding, it is worth noting that although prior research has examined how personal religiosity might affect marijuana use among adolescents and young adults, much less is known about how religious context, especially different *kinds* of religious context, may influence underage marijuana use behaviors. Using two waves of the National Study of Youth and Religion (NSYR) merged with county-level census and religious data sets, this study will be one of the first to approach the religion-marijuana use relationship from an ecological, cross-cultural perspective.

Literature Review

Religion and Marijuana Use

Many prior studies agree that individual religious characteristics, such as religious service attendance and importance of faith in life, may protect youth from marijuana use mainly through promoting family attachment, stronger association with nondelinquent peers, and internalization of anti-substance values (e.g., Adamczyk and Palmer 2008; Desmond, Soper, and Kraus 2011). For instance, in a study of U.S. adolescents, Desmond and colleagues find that the protective effect of personal religiosity, a scale based off religious service attendance and importance of religion, is mediated when delinquent peer association and peer pressure on using drugs are included in the models. Meanwhile, they also find that personal religiosity may significantly reduce chance of using marijuana even if one has many friends using marijuana. Therefore, besides introducing one to more nondelinquent peers, individual religiosity may also function as an internalized moral system monitoring one's behaviors even when one is trapped in a deviant environment (Desmond, Soper, and Kraus 2011).

Perhaps due to differences in research design, some studies find a direct, unmediated individual religious effect against substance use behaviors even after controlling relevant peer and family variables (e.g., Bahr and Hoffman 2008; Thomson 2016; Ulmer et al. 2012). For instance, even after controlling for parental attachment and peer association, personal religiosity, based on a scale constructed from religious service attendance, importance of religion, and frequency of prayer, is still negatively linked with initiation into marijuana use and persistent marijuana use among U.S. adolescents (Ulmer et al. 2012).

In the context of this study, it is helpful to keep in mind that religion is not merely a collection of rigid individual beliefs and practices. Instead, it is a pliant and all-embracing group property whose influence could be far-reaching, affecting a variety of important life outcomes for almost everyone sharing the same geographic space. In line with this idea, Tittle and Welch examine how various socioreligious contexts may moderate personal religious effects on deviant behaviors. They find that personal religiosity has the strongest inhibitive effect on deviant behaviors in more secular social contexts characterized by higher proportion of religious nonaffiliates (Tittle and Welch 1983). However, contexts referred to in Tittle and Welch's study are essentially categorized individual characteristics. In other words, contexts are never properly measured as aggregate properties in which individuals are embedded (Stark 1996).

In response to this problem, sociologists have proposed the moral community hypothesis to explain how religious context may affect individual delinquency. The key argument from the moral community hypothesis is that when an individual's religious values and norms are endorsed and reinforced by his or her social environment, that individual is more likely to be religiously committed and therefore less likely to engage in delinquent behaviors challenging his or her religious faith (Regnerus 2003; Stark 1996).

The moral community hypothesis has received some empirical support from prior research looking into the religious contextual effect on substance use behaviors. For instance, Rivera and

colleagues find that micro-level moral communities, i.e., number of close friends who share similar religious characteristics, may strengthen the negative association between personal religiosity and substance use among young adults (Rivera, Lauger, and Cretacci 2018). Designating moral communities as forms of school-level religiosity, Wallace and colleagues find that even after controlling for individual-level variables, school-level religiosity still bears a negative relationship with marijuana use for a sample of high school seniors (Wallace et al. 2007). Using samples covering all adolescent ages, Bahr and Hoffman find that school-level religiosity is negatively associated with frequency of cigarette use for both a national sample and a Utah sample (Bahr and Hoffman 2008). Specifically, for the Utah sample of adolescents, this protective school-level religious effect may even extend to marijuana use and heavy drinking. Going beyond school level, Mellor and Freeborn find that county-level religious market density, i.e., the proportion of the county population belonging to the same denomination as the respondent, shares a negative relationship with marijuana use for a sample of adolescents with Judeo-Christian religious affiliation (Mellor and Freeborn 2011).

These results confirmed the main message from the moral community hypothesis; that is, when one's religious characteristics become the norm in the community, the community becomes a moral community keeping people on track with the lifestyle endorsed by the surrounding moral community. Consequently, delinquency becomes a rarity (Regnerus 2003; Stark 1996).

Two Different Moral Communities: Catholic and Conservative Protestant

One critical issue emerges from research using the moral community hypothesis, namely, that make-up of the *kind* of moral community is not properly addressed. There appears to be a homogenization of Catholic and conservative Protestant postures, quite possibly because both communities are often referred to as Christian. However, it is likely that due to its inherent religious value differences, a moral community suffused with Catholic values may produce quite different individual and social outcomes compared to another moral community dominated by conservative Protestant cultural elements.

This speculation has both theoretical and empirical bases. For instance, recognizing the differences between Catholicism and Protestantism, Emile Durkheim has argued that when a particular religion has a predominant presence in a region, its cultural values and norms could affect how local residents bond with each other, leading to higher or lower suicide rates (Durkheim 1897). Max Weber also points out that the ethical values stemming from certain kinds of religion might be responsible for the economic rise and fall in a region where one of the religions has a large number of followers (Weber 1904).

More contemporary sociologists have proposed the civic community theory to highlight the importance of looking into variations between moral communities when studying religious contextual influences. These individuals suggest that the Catholic Church has a long tradition of social activism and welfare. For instance, in his 1987 encyclical, Pope John Paul II voiced concerns regarding the undesirable living conditions faced by the vulnerable and impoverished. In related encyclicals, the Pope called for collective Catholic action to better address those social ills through effective social interventions, such as more responsible, equitable economic development (Pope John Paul II 1988). Within an organizationally unified organization such as the Catholic Church, these doctrinal teachings on social action would possibly have a significant impact on the church followers' social and moral views (Blanchard et al. 2008).

Echoing this historical and cultural tradition, the civic community theory argues that the Catholic culture endorses worthwhile worldly values and a strong devotion to better the wider community through community investment and collaboration (Beyerlein and Hipp 2005; Putnam 2007). Therefore, areas depicted by significant presence of a Catholic population tend to have more favorable individual and social outcomes, such as lower mortality rates (Blanchard et al. 2008). Devotion to social investment and well-being also goes hand in hand with bridging social capital, both of which encourage trust and collaboration across group boundaries in a community.

Beyerlein and Hipp (2005) show that the prevalence of bridging social capital in a community may lead to a strong, extensive social control network as members in the community are more willing to look out for each other and collectively resolve issues. Consistent with this line of argument, prior research has shown that communities with a higher Catholic population tend to enjoy lower crime rates (Beyerlein and Hipp 2005; Ulmer and Harris 2013)—a situation indicating a better maintained social environment and higher collective efficacy in the community. When it comes to marijuana use, based on the civic community theory and prior research, we hypothesize the following:

H1: *There is a negative relationship between county-level Catholic population share and marijuana use.*

In contrast to the Catholic culture, the conservative Protestant culture emphasizes a value system that places individual religious redemption and afterlife happiness over social betterment in this world. In addition, the conservative Protestant culture is also characterized by distrust of outsiders, an attribute that produces bonding of social capital, dividing rather than bridging the wider community (Putnam 2007). As a result, areas with a large presence of conservative Protestants tend to fare worse in issues related to social infrastructure and environment. Consequently, members in a community where bonding of social capital exists are less willing to look out for their neighbors and less likely to collaborate across group boundaries—a condition that may weaken the community-wide social control network (Beyerlein and Hipp 2005). Consistent with these arguments, prior research has suggested that areas with a relatively larger conservative Protestant population tend to have worse public health outcomes (Blanchard et al. 2008) and higher crime rates (Beyerlein and Hipp 2005; Desmond, Kikuchi, and Morgan 2010). With this information in mind, we hypothesize the following:

H2: *There is a positive relationship between county-level conservative Protestant population share and marijuana use.*

In a recent study based on the American Values Survey, researchers found that while 50 percent of Catholics between age 18 and 39 support legalizing marijuana, only 29 percent of white conservative Protestant peers endorse this view (Jones, Cox, and Navarro-Rivera 2013). Considering that individual-level religious effects are qualitatively different from the diffusive religious contextual-level effects, which may have the potential to shape the overall social organization of a moral community, one may wonder what might happen to the local adolescents' marijuana use behaviors when the local population share of Catholics increases. For example, one can then ask questions such as: Are they more likely to use marijuana as the above individual-level research has suggested? Or, will the outcome be the opposite, lending support to our hypotheses based on the civic community theory?

Prior research has yet to provide answers to these questions. Instead, most prior research is limited to studying how individual-level religious characteristics might affect marijuana use behaviors. Among the relatively fewer number of studies conducted at the contextual level, religious context is measured as aggregated religiosity (Bahr and Hoffman 2008; Wallace et al. 2007) or religious market share without any differentiation among religious denominations (Mellor and Freeborn 2011). In other words, moral communities, upon which the central concept from the moral community hypothesis is based, have been treated as a homogenous entity in which meaningful variations across different kinds of moral communities cannot be identified.

In this study, individual-level data are merged with county-level variables on adherence rates of different religious denominations. By so doing, it is our intent that the study will not only serve to bring about a renewed, multilevel understanding of sociological theories, such as the moral community hypothesis and civic community theory, but also to provide unique insights into an

important and growing social issue, namely, marijuana consumption in the context of its rising political and social divide in the United States.

METHOD

Data

Our data come from three sources. These include Wave 1 and Wave 2 of the NSYR for all individual-level measures, and the U.S. Census 2000 and the Religious Congregations and Membership Study (RCMS) 2000 for all county-level measures. The NSYR is a nationally representative collection of telephone surveys conducted using the responses of 3,290 youth. Its major purpose is to explore the religious and spiritual life of America's youth as well as their political, social, and cultural attitudes as they transition from adolescence into adulthood (Smith 2008; Smith and Pearce, 2003, 2005). The NSYR features a multiwave construct. Wave 1 of the NSYR was conducted in 2003, when the respondents were 13–17 years old. For each teen respondent, a parent was also interviewed concerning the family environment in which the respondent grew up. Wave 2 of the NSYR was conducted in 2005 when the respondents were aged 16–20. The NSYR also has Wave 3 and Wave 4 survey data, which capture the respondents' lives during formal adulthood. In the United States, only eight states legalized recreational marijuana use as of 2017; the legal age for such use is 21. Considering that our key interest lies in understanding underage, illegal marijuana use (before age 21), use of only Wave 1 and Wave 2 data will be made.

Although the NSYR data source provides a great deal of religious and delinquency measures, which serve the purposes of our study, it does not contain any contextual-level data. With permission from the principal investigators of the NSYR, the NSYR data were merged with county-level U.S. Census data and the county-level data in the RCMS so that a multilevel approach to the NSYR data analysis would now be possible. It should be noted that while the U.S. Census data cover a variety of contextual-level variables, they do not have county-level variables on religion, which are only available in the RCMS. In this study, RCMS data from the year 2000 were used. The data include the number of congregations and adherents (official members plus children of members in a given denomination that do not have child membership) for participating religious groups in each county of the United States (Grammich et al. 2012). The RCMS database embodies most denominations, especially the larger ones, thereby including most, but not all, religious adherents in each county. Using the RCMS data, we were able to calculate a variety of important religious contextual measures, such as rates of adherence per 1,000 population in a county for all denominations combined, for each specific denomination considered separately, and for each of several groupings of similar denominations, as will be described.

Measurements

Dependent and Independent Variables

The dependent variable selected for the study is marijuana use based on Waves 1 and 2 data obtained from the NSYR source. It is worth noting that response to the question "How often, if ever, have you used marijuana?" is reported in different formats. In Wave 1, the respondents can choose among 1 = never, 2 = once or twice, 3 = use it occasionally, and 4 = use it regularly, whereas in Wave 2 the response categories are designated as 1 = once a day or more, 2 = a few times a week, 3 = about once a week, 4 = a few times a month, 5 = about once a month, 6 = a few times a year, and 7 = never. To keep matters consistent and to avoid confusion, we consolidated the seven categories in Wave 2 into four categories, thus matching those in Wave 1.

We recoded "a few times a year" in Wave 2 to match Wave 1's "once or twice." To match Wave 1's "use it occasionally" label, we recoded Wave 2's "about once a month" and "a few times a month." Finally, we recoded Wave 2's "about once a week," "a few times a week," and "once a day or more" to match Wave 1's "use it regularly." By using this approach, both waves were assigned the same number and sequence of categories, thus allowing for a meaningful and proper measurement of frequency of using marijuana.

Key independent variables used in the study are the log-transformed adherence rate of specific religious denominational groupings per 1,000 population of a county calculated from the RCMS 2000 data for the counties in which each NSYR respondent lives. The classification of denominations into denominational traditions was done in ways that parallel the arrangement used in the popular Steensland et al.'s (2000) classification of denominations in the U.S. General Social Survey. Although in our early analyses, we looked for possible influences related to the population shares of conservative (white) Protestants, black Protestants, mainline (more liberal) Protestants, and Roman Catholics, our exploratory analysis showed that only the conservative Protestant and Catholic population share variables had statistically significant relationships to individual-level marijuana use. This outcome is not surprising since past literature, including the results cited in the literature review above, most commonly show associations between marijuana use and membership in, or the presence of, either conservative Protestantism or Roman Catholicism category. Thus, in our analyses, we focus only on two key independent variables, namely, conservative Protestant and Catholic population share.

Catholic population share is calculated using the number of adherents attributed to Roman Catholic congregations (in the RCMS data) divided by county population. Because the denominations in the RCMS do not exactly match the denominations in the General Social Survey for which the Steensland et al. coding scheme was developed, we created our own list of conservative Protestant denominations (based on past research by one of the of the authors). This was done by summing the adherents from these denominations and dividing by the county population share to calculate the conservative Protestant population share. Because both population share variables have a substantial positive skew, our analysis used the natural logs of these two population share variables.

We use the population shares of various religious traditions as the independent variables rather than simply the "overall attendance rates," a contextual religious variable frequently cited in other studies. The RCMS data have no measures of overall attendance rates, but church attendance rates have generally been found to be related to the total percent of the population that belongs to some religious traditions (e.g., Newport 2015), a variable that is in the RCMS database. Because our data separately identify the proportion of people belonging to each religious tradition, the population shares of these traditions are more fine-grained measures than is a simple measure of the overall average attendance rate for a county.

Whether one adopts adherence or congregations as the basis for determining the size of a group depends partly on the defining theory one is using. The civic community theory used in this study emphasizes a *nonmarket* process. It is not a result of congregations acting like businesses competing with one another. Rather, it is a process by which people in the population, adherents, influence one another in their values and ideas and behaviors. Therefore, it is more appropriate to look at the sizes of these groups in the population not the number of congregations that they belong to. Group sizes influence the likelihood that members of the groups will have contact with one another. The interaction process used in this study is not one based on competition between religious organizations, but one whereby people in the community interact with each other in a helpful, neighborly manner. For this reason, it is more appropriate to look at the size of the interacting groups, rather than the number of churches in different denominational groupings.

Control Variables

We control for a variety of variables, which, as prior research suggests, may influence one's substance use behaviors. These control variables can be broadly categorized into individual-level controls and county-level controls. The individual-level controls capture the religious and demographic profile of the youth, their parents, and close friends, while the county-level controls are mostly influenced as shown by prior research, which suggests that some contextual-level socioeconomic characteristics may deeply impact individual conformity and deviance (e.g., Leventhal, Dupéré, and Brooks-Gunn 2009).

In the case of analyses dealing with individual-level religious characteristics, we control for the youth respondents' religious service attendance frequency, frequency of reading religious scriptures alone, frequency of praying alone, importance of religion, closeness to God, beliefs in God's judgment day, and religious affiliation. In order to reduce the numerous dimensions that may cause overidentification, we used the principal component analysis to extract the first two components that cumulatively account for over 70 percent of the total variance in the indicators. We used the principal component factors as religiosity covariates. More detailed information on principal component analysis can be found in Table 1.

Individual religious affiliation comes from an NSYR item where respondents were asked to indicate which group, of a list of religious groups, describes them the best. We used dichotomous indicator variables to code the following religious affiliations measured in both Wave 1 and Wave 2: conservative Protestant, mainline Protestant, black Protestant, Catholic, Jewish, Mormon, unaffiliated, other religions, and indeterminate. In the Wave 2 survey, black Protestants were divided into black evangelical Protestants and black mainline Protestants subcategories. However, in order to keep our measures consistent across waves, we recoded both of these subcategories as a single black Protestant category.

Besides controlling for the religious characteristics of the youth, we control for the religious composition of the youth's social network, which includes parameters such as the number of friends that the respondent claims to have "similar" religious beliefs, the number belonging to the same religious group, the number who are not religious, and the number involved in a religious youth group. Besides tapping into the religious profile of a youth's social network, we also control for the number of a youth's friends using drugs and those involved in misdeeds such as cheating, fighting, or skipping classes. All these social network variables are available only for Wave 2 of the survey. For each of the variables, respondents could indicate up to five, the number of friends involved.

We control for the respondent parent's demographic profile using educational attainment (1 = less than 12th grade, 2 = completed high school, and 3 = beyond high school), household income ranging from 1 = less than \$10K to 11 = more than \$100K, and marital status (1 = married, 0 = other). These parental demographic variables are only present in Wave 1 of the NSYR source. Because an adolescent's relationship to the parents might heavily affect substance use, we control for a number of NSYR variables that focus on this topic. Parents were asked: "How close do you feel to your teen?" We reverse coded the response categories so that the resulting values ranged from 1 = not close at all to 6 = extremely close. Parents of adolescent respondents were asked to evaluate how much stress their families had been through in the past year. We reversed these response categories so that the resulting values ranged from 1 = no stress to 4 = a lot of stress. Youth respondents were asked to rate the extent to which their parents would be upset if they were caught skipping classes, having sex, and using drugs. We likewise reverse coded these response categories to range from 1 = not upset at all to 5 = extremely upset. After an exploratory factor analysis, it was determined that two principal components can succinctly capture over 70 percent of the variance, which were used as the parent-child covariates in the model.

We control for basic demographic characteristics of the youth: race (1 = white, 0 = others), gender (1 = female, 0 = male), age, grades (1 = mostly As or Bs, 0 = other grades), and region of

Table 1: Item loadings for principal components, with principal components' eigenvalues and proportion of explained variance in italic

Item loadings	County economy 1	County economy 2	County economy 3
Prop. service	.19	.31	.33
Prop. retailing	.37	−.06	.01
Prop. farming	−.28	−.12	.49
Prop. construction	−.20	−.35	.37
Prop. manufacturing	−.28	−.24	−.18
Prop. professional	.39	−.14	.01
Urbanization	.31	.26	−.06
Rates of adults college degree	.41	−.02	.05
Median household income	.34	−.30	−.07
Poverty rates	−.22	.49	.08
Rates of single mother household	−.07	.52	−.17
Residential stability	−.19	−.14	−.66
Eigenvalue	5.39	2.48	1.19
Proportion variance	.45	.21	.10
	Religiosity 1	Religiosity 2	
Religious service attendance	.39	−.17	
Importance of religion	.44	−.13	
Reading scriptures alone	.40	−.32	
Praying alone	.46	−.04	
Closeness to God	.41	−.09	
Beliefs in Judgment Day	.34	.92	
Eigenvalue	3.37	0.70	
Proportion variance	.56	.12	
	Parent-child 1	Parent-child 2	
Family stress	−.09	.71	
Closeness to child	.13	−.68	
Upset if child skips school	.55	.05	
Upset if child has sex	.57	.14	
Upset if child uses drugs	.59	.08	
Eigenvalue	1.78	1.05	
Proportion variance	.36	.21	

residence (the four major U.S. Census regions), which can be seen in Table 2. We also control for personality characteristics and moral-theological orientation. Youth were asked: "Do you usually have a good idea of what is right and wrong in most situations?" The response categories were 1 = feel confused, 2 = something in the middle, and 3 = have a good idea. Youth were asked "if you were unsure of what was right or wrong in a particular situation, how would you decide what to do?" Here, we grouped the five possible responses into two categories so that a response of "follow what God or Scripture says is right" was coded as 1 = respecting religious authorities. We coded the other four possible responses as 0. These responses include "follow advice of adult," "follow what makes me feel happy," "helps me get ahead," and "something else." Youth were also asked "in the last year, how often, if ever, did you do things that you hoped your parent(s) would never find out about?" We reverse coded the responses so that the results range from 1 = never to 6 = very often.

Table 2: Descriptive statistics

Variable	Mean	Std. deviation	Min., Max
Dependent variables			
Frequency of marijuana use (w1)	1.41	0.79	1, 4
Frequency of marijuana use (w2)	1.49	0.96	1, 4
Key independent variables (logged)			
Rates of Catholic per 1,000 population (w1)	4.87	1.18	0, 6.62
Rates of Catholic per 1,000 population (w2)	4.85	1.19	0, 6.79
Rates of conservative Protestant per 1,000 population (w1)	4.69	0.91	0.32, 6.88
Rates of conservative Protestant per 1,000 population (w2)	4.70	0.91	0, 6.88
Individual-level religious characteristics			
Religiosity component 1 (w1)	0.16	1.8	−6.67, 4.34
Religiosity component 1 (w2)	−0.31	1.90	−0.69, 4.43
Religiosity component 2 (w1)	0.02	0.81	−2.94, 2.59
Religiosity component 2 (w2)	0.06	0.84	−2.79, 3.05
Conservative Protestant (w1)	0.31	0.46	0, 1
Conservative Protestant (w2)	0.26	0.44	0, 1
Mainline Protestant (w1)	0.10	0.30	0, 1
Mainline Protestant (w2)	0.08	0.27	0, 1
Black Protestant (w1)	0.12	0.32	0, 1
Black Protestant (w2)	0.07	0.25	0, 1
Catholic (w1)	0.24	0.43	0, 1
Catholic (w2)	0.19	0.40	0, 1
Jewish (w1)	0.03	0.18	0, 1
Jewish (w2)	0.04	0.19	0, 1
Mormon (w1)	0.02	0.14	0, 1
Mormon (w2)	0.02	0.14	0, 1
Not religious (w1)	0.12	0.33	0, 1
Not religious (w2)	0.17	0.38	0, 1
Other religion (w1)	0.08	0.27	0, 1
Other religion (w2)	0.02	0.15	0, 1
Indeterminate (w1)	0.02	0.15	0, 1
Indeterminate (w2)	0.15	0.36	0, 1
Individual-level demographic characteristics			
Female (w1)	0.50	0.50	0, 1
White (w1)	0.66	0.47	0, 1
Age (w1)	15.02	1.40	13, 17
Age (w2)	17.70	1.36	16, 20
Good grades (w1)	0.68	0.47	0, 1
Good grades (w2)	0.71	0.46	0, 1
Frequency of misconducts (w1)	4.10	1.48	1, 6
Frequency of misconducts (w2)	3.83	1.46	1, 6
Respecting religious authorities (w1)	0.61	0.49	0, 1
Respecting religious authorities (w2)	0.59	0.49	0, 1

(*Continued*)

Table 2 (*Continued*)

Variable	Mean	Std. deviation	Min., Max
Clear morality (w1)	2.60	0.79	1, 3
South (w1)	0.41	0.49	0, 1
South (w2)	0.41	0.49	0, 1
West (w1)	0.20	0.40	0, 1
West (w2)	0.19	0.40	0, 1
Midwest (w1)	0.16	0.37	0, 1
Midwest (w2)	0.16	0.37	0, 1
Northeast (w1)	0.23	0.42	0, 1
Northeast (w2)	0.24	0.42	0, 1
Social network characteristics			
Number of friends with similar religious beliefs (w2)	3.33	1.68	0, 5
Number of friends from the same religious group (w2)	1.10	1.58	0, 5
Number of friends joining religious youth groups (w2)	1.34	1.57	0, 5
Number of friends not religious (w2)	1.18	1.53	0, 5
Number of friends doing drugs (w2)	1.79	1.80	0, 5
Number of friends making troubles (w2)	1.32	1.62	0, 5
Parent characteristics			
Educational attainment (w1)	2.60	0.64	1, 3
Income (w1)	5.91	2.93	1, 11
Married (w1)	0.68	0.47	0, 1
Parent-child component 1 (w1)	−0.07	1.36	−7.22, 4.48
Parent-child component 2 (w1)	0.004	1.03	−3.82, 4.69
County-level characteristics (logged)			
Prop. male (w1)	0.40	0.01	0.36, .41
Prop. male (w2)	0.40	0.01	0.36, .47
Prop. black (w1)	0.11	0.11	0, .61
Prop. black (w2)	0.11	0.11	0, .61
Economic component 1 (w1)	−0.70	2.54	−7.58, 6.35
Economic component 1 (w2)	−0.48	2.48	−8.74, 6.34
Economic component 2 (w1)	−0.34	1.60	−5.18, 5.72
Economic component 2 (w2)	−0.22	1.61	−4.96, 5.72
Economic component 3 (w1)	0.05	1.04	−3.18, 3.80
Economic component 3 (w2)	0.06	1.06	−3.55, 4.08

Finally, the study controls for some county-level variables that have been widely used in prior research on community outcomes. County-level variables are drawn from the U.S. Census and include the proportion of adults 25 and older with a four-year college degree, median household income, poverty rates, residential stability, proportion of individuals who have not changed residence during the previous five years, proportion of single-mother households, urbanization rate, proportion of adult males employed in professional fields, service, retailing, farming, construction, or manufacturing. Because these variables relate to the socioeconomic well-being of a county, we used the principal component analysis to extract three principal component factors that cumulatively explain over 70 percent of the variance for dimension reduction. However,

county-level proportion of African American and proportion of male residents are demographic variables that conceptually differ from economic structure. These are treated independently in the model.

Plan of Analysis

People belong to different higher-order ecological units. For religion, different denominations are concentrated in different parts of the country (Stark and Bainbridge 1985). When people belong to different units, they are subject to the common influence exerted by these units, or they share similar characteristics that cluster them in these units. The common assumption in regression, i.e., independent and identical distribution (i.i.d.) of the sampled data, is violated in this scenario and may cause a deflation in variances. In social sciences, observations are rarely distributed free of clustering at higher-level units, and these contextual-level effects are shown to exercise considerable influence on substance use beyond the effects of individual characteristics (Yang et al. 2015). This requires us to use multilevel modeling. There are two types of clustering in multilevel modeling: a nested data structure where a collection of individuals only belongs to one higher-order unit, such as all the counties of Kentucky belong to Kentucky at all times; and a cross-classified data structure where individuals may shift their membership, such as patients who may seek different doctors. In the cross-classified model, each higher-order unit (e.g., a doctor) still exercises a common impact on all lower-order units (e.g., patients), but a patient may be subject to the influence of several different doctors at all times.

The cross-classified multilevel model for county-level religious influence can be expressed as:

$$y_{tij} = \beta_{0ij} + \beta_{ij} X_{ijt} + \beta_{jt} R_{jt} + \sum c_j D_{jit} + \epsilon_{tij},$$

$$\beta_{0ij} = \pi_{ij} + r_{ij}, \ \pi_{ij} = \alpha_j + \tau_j,$$

where y_{tij} is marijuana use of the ith individual in the jth county at wave t, and the intercept π_{ij} now represents the county-level fixed average marijuana use. X_{ijt} is a vector of variables representing all individual-level information, including demographic background, peer deviance, religiosity, etc. R_{jt} is the county-level proportion of the jth religion at the tth wave. Using the above definitions, variances and residuals then become level specific, where τ_j represents the variance at county level, r_{ij} represents the variance at individual level, and ϵ_{tij} represents the residuals.

These parameters form a nested multilevel model where addition of the $\sum c_j D_{jit}$ term characterizes a cross-classified multilevel model and where c_j represents a random effect due to a person encountering a county at a given time, and D_{kit} is a dummy indicator with a value of 1 if person i encounters group j at time t.

All data preparation and model analyses were conducted using Stata 14 software. Before performing the main analyses, multiple imputation was conducted to handle the missing data by creating five additional samples for a completed data set based on the chained multiple imputation method. The latter is preferred in large samples with missing values across several variables of different types (Azur et al. 2011). The "mi estimate" applied the combination rules to analyze the imputed full samples in all subsequent models that would otherwise be biased due to sample inflation. The "mi" method allows the estimation of parameters as the average of coefficients from the imputed data sets, and calculates standard errors based on the degree to which the coefficient estimates vary across the imputations. With multiple imputation, we also followed the same application of Rubin's rule to calculate the goodness-of-fit indices, including AIC, BIC, and log-likelihood, from the five imputed data sets (Rubin 1996). Further analyses (available upon request) showed no substantial differences in our key findings before and after multiple imputation.

RESULTS

All covariates are presented in their means, standard deviations, ranges, and sample sizes by survey waves in Table 2. Descriptive results indicate that 26 percent of the respondents had smoked marijuana at both waves of the survey. The logarithmic rates of Catholics per 1,000 county population average at 4.87 and 4.85 for the two waves; these values correspond to 130 and 127 people per 1,000 county residents. The logarithmic rates of conservative Protestants are 4.69 and 4.70, corresponding to 109 and 110 people per 1,000 county residents at the two waves. In the case involving individual-level samples, 31 percent are conservative Protestant at Wave 1 and 26 percent remain conservative Protestant at Wave 2. At Wave 1, 24 percent are Catholics and 19 percent remain Catholic at Wave 2. Among county-level characteristics, note that all variables are expressed in the logarithmic base to account for skewness. Some logarithmic variables, such as the proportion employed in varying occupations, have a negative value range when their raw scores are between 0 and 1.

Table 3 shows the results from regression analyses of marijuana use frequency on the county-level share of Catholics and other control variables. Model 1 has intercepts varying across counties using only the Catholic population share as the fixed coefficient. Catholic population share is positively associated with more frequent marijuana use (.03, $p < .01$). For every 1 percent increase in Catholic population share, the increase in marijuana smoking is 0.03 out of four maximum levels. However, when individual-level covariates are added in Model 2, the effect of county-level Catholic share becomes nonsignificant, indicating that the impact of Catholic county share may have been mediated through individual characteristics. These covariates mostly relate to four dimensions of individual characteristics, namely, demographic background, individual religiosity, parental profile, and peer characteristics. These variables capture the individual-level sources of influence on marijuana use as suggested in previous studies. Here, we find that age bears a positive relationship with marijuana use, while it is the opposite when one has good grades in school. Parents showing concern over their children (parent-child component 1) and stronger religiosity (religiosity component 1) are associated with less marijuana smoking. As for peer influence, having more close friends joining religious youth groups is negatively associated with marijuana use, while having more drug-using friends is positively associated with marijuana use.

In the Model 3 analysis, the most compelling result is the change of direction in the effect of county-level Catholic population share. This time, county-level Catholic population share is negatively associated with marijuana use frequency ($-.03$, $p < .05$). Model 3 shows that, when important individual influences on marijuana use are isolated, the contextual Catholic adherence rate itself has a suppressive effect on marijuana use frequency. The only significant county-level predictor is the log-base county-level proportion of African Americans, implying that in places with equal number of African Americans, more Catholic population translates to less frequent marijuana smoking. If we consider the change flow between all three models, the change between Models 1 and 2 suggests that, initially, Catholic population share is associated with more frequent marijuana use only because there are more carefree parents, irreligious persons, and deviant peers in Catholic-heavy counties. The county-level Catholicism effect disappears after these individual characteristics are considered. Between Models 2 and 3, we find that county-level black population proportion may suppress and cancel out the impact of individual characteristics, after which Catholic population share is associated with less frequent marijuana use. The interaction between county-level Catholic population share and personal Catholic identification does not reach statistical significance, reinforcing the classic sociological argument that the contextual influence of a religion is diffused and structural beyond individual beliefs (e.g., Durkheim 1897).

Turning to the regression analyses conducted using the conservative Protestant population share in Table 4, we find the opposite effect when compared with that of the Catholic population share. In Model 1, county-level conservative Protestant population share is negatively

Table 3: Multilevel regression results predicting marijuana use on county-level Catholic population share

Dependent variable: Marijuana use frequency	Model 1 (n = 5,079)		Model 2 (n = 4,551)		Model 3 (n = 4,535)		Interaction	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
County catholic population share	.03**	.01	−.015	.01	−.03*	.01	Main: −.03* by individual Catholic: .02	.01 .03
Individual-level control variables								
Conservative Protestant			.05	.04	.05	.41		
Mainline Protestant			.02	.04	.02	.05		
Black Protestant			−.02	.05	−.04	.05		
Catholic			.00	.04	.00	.04		
Jew			.09	.06	.08	.06		
Mormon			−.01	.08	−.03	.08		
Other			.19*	.07	.20**	.07		
Indeterminate			.04	.05	.03	.05		
Not religious (ref.)								
Female			−.01	.02	−.01	.02		
White			−.01	.03	.02	.03		
Age			.01*	.01	.01*	.01		
Good grades			−.10***	.02	−.10***	.02		
Freq. of misconduct			.01	.01	.01	.01		
Clear morality			−.11***	.01	−.11***	.01		
Respecting religious authorities			−.01	.02	−.01	.01		
Midwest			.01	.04	.04	.04		
Northeast			.01	.03	.06	.04		

(*Continued*)

Table 3 (*Continued*)

Dependent variable: Marijuana use frequency	Model 1 (n = 5,079)		Model 2 (n = 4,551)		Model 3 (n = 4,535)		Interaction
West			.05	.04	.08*	.04	
South (ref.)							
Religiosity component 1			−.02**	.01	−.02*	.01	
Religiosity component 2			.01	.01	.01	.01	
Parent education			.05*	.02	.05*	.02	
Parent income			−.00	.00	−.01	.01	
Parent married			−.04	.03	−.03	.03	
Parent-child component 1			−.17***	.01	−.17***	.01	
Parent-child component 2			−.01	.01	−.01	.01	
# of friends with similar religious beliefs			.01	.03	.01	.01	
# of friends in the same religious group			.02*	.01	.02*	.01	
# of friends in religious youth group			−.03**	.01	−.03**	.01	
# of friends not religious			.01	.01	.01	.01	
# of friends using drugs			.12***	.01	.12***	.01	
# of friends making trouble			.03***	.01	.03***	.01	
County-level control variables							
Proportion male					−.00	.54	
Proportion black					.02*	.01	
Economic component 1					.01	.01	
Economic component 2					−.00	.01	
Economic component 3					.02	.01	
σ	.67		.61		.61		
τ_{00}	.55		.25		.24		
τ_{11}	.00		.00		.00		

*$p < .05$; **$p < .01$; ***$p < .001$ (two tailed).

Table 4: Multilevel regression results predicting marijuana use on county-level conservative Protestant population share

Dependent variable: Marijuana use frequency	Model 1 (n = 5,079)		Model 2 (n = 4,551)		Model 3 (n = 4,535)		Interaction	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
County conservative Prot. population share	−.04**	.01	.02	.02	.03	.02	Main: .03 by individual Conservative Prot.: .02	.02 .03
Individual-level control variables								
Conservative Protestant			.05	.04	.05	.04		
Mainline Protestant			.02	.04	.02	.05		
Black Protestant			−.02	.05	−.04	.05		
Catholic			.00	.04	.00	.04		
Jew			.09	.06	.09	.06		
Mormon			−.01	.08	.01	.08		
Other			.19*	.07	.20**	.07		
Indeterminate			.04	.05	.03	.05		
Not religious (ref.)								
Female			−.01	.02	−.01	.02		
White			−.01	.03	.02	.03		
Age			.01*	.01	.01*	.01		
Good grades			−.10***	.02	−.10***	.02		
Freq. of misconduct			.01	.01	.01	.01		
Clear morality			−.11***	.01	−.11***	.01		
Respecting religious authorities			−.03	.02	−.03	.02		
Midwest			.01	.04	−.02	.05		
Northeast			.01	.03	.06	.04		

(*Continued*)

Table 4 (*Continued*)

Dependent variable: Marijuana use frequency	Model 1 (n = 5,079)		Model 2 (n = 4,551)		Model 3 (n = 4,535)		Interaction
West			.05	.04	.09*	.04	
South (ref.)							
Religiosity component 1			−.02**	.01	−.02*	.01	
Religiosity component 2			.01	.01	.01	.01	
Parent education			.05*	.02	.05*	.02	
Parent income			−.00	.00	−.01	.01	
Parent married			−.04	.03	−.03	.03	
Parent–child component 1			−.17***	.01	−.17***	.01	
Parent–child component 2			−.01	.01	−.01	.01	
# of friends with similar religious beliefs			.01	.03	.01	.01	
# of friends in the same religious group			.02*	.01	.02*	.01	
# of friends in religious youth group			−.03**	.01	−.03**	.01	
# of friends not religious			.01	.01	.01	.01	
# of friends using drugs			.12***	.01	.12***	.01	
# of friends making trouble			.03***	.01	.03***	.01	
County-level control variables							
Proportion male					−.09	.54	
Proportion black					.02*	.01	
Economic component 1					.01	.01	
Economic component 2					−.01	.01	
Economic component 3					.02	.01	
σ	.67		.61		.61		
τ_{00}	.55		.26		.25		
τ_{11}	.00		.00		.00		

*p < .05; **p < .01; ***p < .001 (two tailed).

associated with marijuana use among youth. However, after individual religious identities and other individual-level control variables are accounted for in Model 2, the effect of county-level conservative Protestant population share becomes insignificant. This suggests that, similar to the effects of Catholic population share, religious context influences marijuana use largely through individual-level characteristics. However, when contextual demographic and socioeconomic variables are used in Model 3, the independent effect of conservative Protestant population share remains insignificant. We may conclude that unlike the Catholic moral community, the conservative Protestant moral community does not independently affect the youths' marijuana use behavior.

DISCUSSION AND CONCLUSIONS

At a time when marijuana use in the United States has become a polarizing issue in politics and popular culture, deeper insight into community-related forces driving its use is needed. The current study, with emphasis on religion-based factors, provides such an opportunity. The study merges individual-level data with county-level census and religious data to timely explore how different sectors of a religious moral community might influence the likelihood of underage marijuana use. In so doing, the study contributes to a subfield that has been understudied due to an oversight in the inherent multilevel nature of religion and the variations between different kinds of religious moral communities. The results demonstrate the importance of looking into the variations between religious moral communities when studying underage marijuana use.

As noted in the "Results" section, the main effect of Catholic population share is positively associated with marijuana use frequency, and negatively associated for the conservative Protestant population share. However, when county-level control variables are controlled, the direction of the relationship between county-level Catholic population share and marijuana use frequency is reversed. In other words, youth living in counties with higher population share of Catholics are less likely to use marijuana, an outcome that is consistent with our Hypothesis 1. In contrast, the negative main effect of conservative Protestant population share on marijuana use is explained after individual-level characteristics are taken into consideration and remains statistically insignificant after controlling for county-level variables. This outcome leads us to reject our stated Hypothesis 2.

The change of the Catholic religious contextual effect from positive to negative suggests the importance of using a multilevel approach to capture suppressor effects when studying youth marijuana use behaviors. Statistically, a suppressor may be orthogonal to both the independent and dependent variables, but it is associated with the residual matrix of independent and dependent variables so that the bivariate ellipsoid becomes obvious when the residual matrix is explained by the suppressor. Substantively, a suppressor points toward a latent relationship between an independent and a dependent variable. As Table 3 data indicate, the initially positive main effect of Catholic population share on marijuana use is mediated when individual-level characteristics are controlled. In other words, it might be possible that, compared to other counties, Catholic counties tend to have more youth who bear important individual characteristics that are associated with more frequent marijuana use.

However, without adopting a multilevel approach, one might simply neglect an important county-level suppressor and mistakenly conclude that Catholic religious context has no significant effect on marijuana use. In reality, county-level control variables, especially the county-level population share of African Americans, function as a suppressor of the Catholic contextual effect. When suppressed, the statistical significance of Catholic population share on marijuana use reemerges. This result suggests that the county-level African-American population share may account for the individual-level risk factors that have nullified the Catholic contextual effect on marijuana use. When the African-American population share in counties is held constant,

counties with higher population share of Catholics tend to have reduced marijuana use frequency among the youth.

The county-level suppressor effect was rarely discussed in previous studies and is likely the main cause of the discrepancy between findings of individual-level religious effects on substance use and those based on multilevel analyses. For instance, although individual Catholics are more likely to use marijuana than others (Ulmer et al. 2012), our study shows that at the contextual level, a predominantly Catholic social context is negatively associated with marijuana use. Therefore, our findings also contribute to the multilayered theorization of religious effects, which argues that individual religious effects are conceptually distinct from the religious effects of religions as social organizations (e.g., Van Tubergen, Te Grotenhuis, and Ultee 2005; Wallace et al. 2007).

In addition to statistical robustness, the statistical insignificance of the cross-level interaction between individual Catholic identity and county-level Catholic population share suggests that the Catholic contextual effect on marijuana use is diffusive, an outcome that influences almost everyone sharing the same geographic location regardless of individual Catholic affiliation. This result not only echoes some of the key arguments from classic sociologists regarding the social and group nature of religion (e.g., Durkheim 1897), but also lends further support to the civic community theory that argues that Catholics tend to value bridging social capital with various social groups. In other words, it might be possible that, due to this Catholic cultural emphasis on bridging social capital across group boundaries in counties with higher Catholic population share, youth who are not Catholic can benefit from the diffusive and inhibitive Catholic sociocultural influences on marijuana use.

Overall, the direction of influence from the Catholic population share on marijuana use is consistent with the hypothesis based on civic community theory. However, the robustness of the Catholic contextual effect leads us to ask: What might explain the robust Catholic contextual effect of marijuana use? Prior research using the civic community theory has found that areas with a higher proportion of civically engaged denominations, such as the Catholic denomination, tend to enjoy lower crime rates, indicating a higher degree of community investment and efficacy (e.g., Desmond, Kikuchi, and Morgan 2010; Ulmer and Harris 2013). Along with this line of research, it is possible that county-level measures related to deviance and social control, such as police force per capita, arrest rates, or crime rates, could account for the robust Catholic contextual effect on marijuana use.

In other words, it is possible that the negative association between Catholic population share and marijuana use may have something to do with the overall safer environment in Catholic counties, which could be characterized by lower crime rates and more law enforcement officers per capita. However, due to data limitations, county-level measures involving crimes and law enforcement resources were not available for this study. Future research may want to look into these measures and their effect on underage use of marijuana within the religious context used in this study.

Another limitation of this study is the geographically confined scope, which, in our study, was limited to the Judeo-Christian social context. Expanding the scope to include other religions may lead to varying stances and teachings on substance use that are different from the Judeo-Christian version. Future research may want to expand the cultural horizons to non-Western social contexts to examine how other religious contexts, such as those of Islam and Buddhism, may influence underage marijuana use behaviors. Besides the geographical limitation, data used in the study were collected in the early 2000s when recreational marijuana in the United States was illegal. Since 2012, nine states, along with the District of Columbia, have legalized recreational marijuana. This action can lead one to speculate to what extent religious context may influence marijuana use within social contexts, especially those nine states where marijuana is no longer heavily stigmatized. Future research using data collected in more recent years needs to be considered as a further test of the validity of using the moral community hypothesis in these changing times.

Despite these limitations, the robust religious contextual effect found in this study suggests that religion consists of more than a set of individual beliefs and characteristics. Its impact on health-related outcomes such as marijuana use may reflect what Weber and Durkheim have referred to as the social nature of religion—when a religion becomes a dominant social group in an area, its cultural perspectives on important social matters and arrangements may have long-term impacts on a wide range of individual outcomes for residents living in that area.

In conclusion, this study is one of a few research pursuits that have used multilevel analytical skills dealing with underage marijuana use across a variety of religious moral communities. Differing from prior research on religious context and marijuana use that treated religious moral communities as a homogenous whole, the main findings of the study reveal that it is important to consider variations between different kinds of religious moral communities because their differences can lead to different outcomes—in this case, underage marijuana use.

References

Adamczyk, Amy and Ian Palmer. 2008. Religion and initiation into marijuana use: The deterring role of religious friends. *Journal of Drug Issues* 38(3):717–42.

Azur, Melissa J. Elizabeth A. Stuart, Constantine Frangakis, and Philip J. Leaf. 2011. Multiple imputation by chained equations: What is it and how does it work? *International Journal of Methods in Psychiatric Research* 20(1):40–09.

Bahr, Stephen J. and John P. Hoffmann. 2008. Religiosity, peers, and adolescent drug use. *Journal of Drug Issues* 8(3): 743–70.

Beyerlein, Kraig and John R. Hipp. 2005. Social capital, too much of a good thing? American religious traditions and community crime. *Social Forces* 84(2):995–1013.

Blanchard, Troy C., John P. Bartkowski, Todd L. Matthews, and Kent R. Kerley. 2008. Faith, morality and mortality: The ecological impact of religion on population health. *Social Forces* 86(4):1591–1620.

Bosch, Torie. 2007. What do Christian groups think about marijuana? *Slate*. Available at http://www.slate.com/articles/news_and_politics/explainer/2007/03/what_would_jesus_smoke.html, accessed January 2, 2018.

Christiansen, Cal. 2017. Is it a sin to smoke marijuana? *Northwest Catholic Journal*. Available at http://www.nwcatholic.org/spirituality/ask-father/catholic-belief-smoking-marijuana.html, accessed August 30, 2018.

Desmond, Scott A., George Kikuchi, and Kristopher H. Morgan. 2010. Congregations and crime: Is the spatial distribution of congregations associated with neighborhood crime rates? *Journal for the Scientific Study of Religion* 49(1):37–55.

Desmond, Scott A., Sarah E. Soper, and Rachel Kraus. 2011. Religiosity, peers, and delinquency: Does religiosity reduce the effect of peers on delinquency? *Sociological Spectrum* 31(6):665–94.

Durkheim, Emile. 1897. *Suicide*. New York, NY: Free Press (reprint 1997).

Grammich, Clifford, Kirk Hadaway, Richard Houseal, Dale E. Jones, Alexei Krindatch, Richie Stanley, and Richard H. Taylor. 2012. *2010 U.S. religion census: Religious congregations & membership study*. Available at http://www.thearda.com/Archive/Files/Descriptions/RCMSCY10.asp, accessed November 1, 2017.

John Paul II, Pope. 1988. *Encyclical letter sollicitudo rei socialis of the supreme pontiff, John Paul II, to the bishops, priests, religious families, sons and daughters of the church and all people of good will for the twentieth anniversary of populorum progressio*. Washington, DC: Office of Publishing and Promotion Services, U.S. Catholic Conference.

Jones, Robert P., Daniel Cox, and Juhem Navarro-Rivera. 2013. *The 2013 American values survey: In search of libertarians in America*. Washington, DC: Public Religion Research Institute. Available at https://www.prri.org/wp-content/uploads/2013/10/2013.AVS_WEB-1.pdf, accessed August 30, 2018.

Leventhal, Tama, Veronique Dupéré, and Jeanne Brooks-Gunn. 2009. Neighborhood influences on adolescent development. In *Handbook of adolescent psychology*, edited by Richard Lerner and Laurence Steinberg, pp. 411–43. Hoboken, NJ: John Wiley & Sons.

Mehra, Reena, Brent A. Moore, Kristina Crothers, Jeanette Tetrault, and David A. Fiellin. 2006. The association between marijuana smoking and lung cancer: A systematic review. *Archives of Internal Medicine* 166:1359–67.

Mellor, Jennifer M. and Beth A. Freeborn. 2011. Religious participation and risky health behaviors among adolescents. *Health Economics* 20:1226–40.

Newport, Frank. 2015. Frequent church attendance highest in Utah, lowest in Vermont. *Gallup*. Available at: https://news.gallup.com/poll/181601/frequent-church-attendance-highest-utah-lowest-vermont.aspx, accessed August 30, 2018.

Pope, Harrison G. Jr. and Deborah Yurgelun-Todd. 1996. The residual cognitive effects of heavy marijuana use in college students. *Journal of the American Medical Association* 275:521–27.

Putnam, Robert D. 2007. E pluribus unum: Diversity and community in the twenty-first century. *Scandinavian Political Studies* 30(2):137–74.

Regnerus, Mark D. 2003. Moral communities and adolescent delinquency: Religious contexts and community social control. *Sociological Quarterly* 44(4):523–54.

Rivera, Craig J., Timothy R. Lauger, and Michael A. Cretacci. 2018. Religiosity, marijuana use, and binge drinking: A test of the moral community hypothesis. *Sociology of Religion*. https://doi.org/10.1093/socrel/srx071

Room, Robin, Benedikt Fischer, Wayne Hall, Simon Lenton, and Peter Reuter. 2009. *Cannabis policy: Moving beyond stalemate*. Oxford: Oxford University Press.

Rubin, Donald B. 1996. Multiple imputation after 18+ years. *Journal of the American Statistical Association* 91(434): 473–89.

Rupert, David. 2018. The Christian response to legal marijuana. *Patheos*. Available at http://www.patheos.com/blogs/davidrupert/the-christian-response-to-legal-marijuana/, accessed August 30, 2018.

Schulenberg, John E., Alicia C. Merline, Lloyd D. Johnston, Patrick M. O'Malley, Jerald G. Bachman, and Virginia B. Laetz. 2005. Trajectories of marijuana use during the transition to adulthood: The big picture based on national panel data. *Journal of Drug Issues* 35:255–80.

Smith, Christian. 2008. *The National Study of Youth and Religion wave 3*. Available at http://www.thearda.com/Archive/NSYR.asp, accessed November 1, 2017.

Smith, Christian and Lisa Pearce. 2003. *The National Study of Youth and Religion wave 1*. Available at http://www.thearda.com/Archive/NSYR.asp, accessed November 1, 2017.

———. 2005. *The National Study of Youth and Religion wave 2*. Available at http://www.thearda.com/Archive/NSYR.asp, accessed November 1, 2017.

Stark, Rodney. 1996. Religion as context: Hellfire and delinquency one more time. *Sociology of Religion* 57(1):163–73.

Stark, Rodney and Williams S. Bainbridge. 1985. *The future of religion: Secularization, revival and cult formation*. Berkeley, CA: University of California Press.

Steensland, Brian, Jerry Z. Park, Mark D. Regnerus, Lynn D. Robinson, Bradford Wilcox, and Robert D. Woodberry. 2000. The measure of American religion: Toward improving the state of the art. *Social Forces* 79(1):291–318.

Strode, Tom. 2016. Marijuana legalization on 9 state ballots. *Baptist Press*. Available at http://www.bpnews.net/47842/marijuana-legalization-on-9-state-ballots, accessed January 2, 2018.

Thomson, Robert A. 2016. More than friends and family? Estimating the direct and indirect effects of religiosity on substance use in emerging adulthood. *Journal of Drug Issues* 46(4):326–46.

Tittle, Charles R. and Michael R. Welch. 1983. Religiosity and deviance: Toward a contingency theory of constraining effects. *Social Forces* 61(3):653–82.

Ulmer, Jeffrey T., Scott A. Desmond, Sung Joon Jang, and Byron R. Johnson. 2012. Religious involvement and dynamics of marijuana use: Initiation, persistence, and desistence. *Deviant Behavior* 33(6):448–68.

Ulmer, Jeffrey T. and Casey T. Harris. 2013. Race and the religious contexts of violence: Linking religion and white, black, and Latino violent crime. *Sociological Quarterly* 54(4):610–46.

Van Tubergen, Frank, Manfred te Grotenhuis, and Wout Ultee. 2005. Denomination, religious context, and suicide: Neo-Durkheimian multilevel explanations tested with individual and contextual data. *American Journal of Sociology* 111(3):797–823.

Wallace, John M. Jr., Ryoko Yamaguchi, Jerald G. Bachman, Patrick M. O'Malley, John E. Schulenberg, and Lloyd D. Johnston. 2007. Religiosity and adolescent substance use: The role of individual and contextual influences. *Social Problems* 54(2):308–27.

Weber, Max. 1904. *The Protestant ethic and the spirit of capitalism*. New York, NY: Scribner.

Yang, Tingzhong, Ross Barnett, Ian R. H. Rockett, Xiaozhao Yang, Dan Wu, Weijun Zheng, and Lu Li. 2015. The impact of regional economic reliance on the tobacco industry on current smoking in China. *Health & Place* 33(0):159–71.

Zuckerman, Barry, Deborah A. Frank, Ralph Hinson, Hortensia Amaro, Suzette M. Levenson, Herbert Kayne, Steven Parker, Robert Vinci, Kwabena Aboagye, Lise E. Fried, Howard Cabral, Ralph Timperi, and Howard Bauchner. 1989. Effects of maternal marijuana and cocaine use on fetal growth. *New England Journal of Medicine* 320:762–68.