Rev Relig Res
https://doi.org/10.1007/s13644-017-0320-7

ORIGINAL PAPER

Religious Context Matters: Exploring the Relationship Between Religious Context and Underage Alcohol Consumption

Fanhao Nie[1] · **Xiaozhao Yousef Yang**[2] · **Daniel V. A. Olson**[3]

Received: 27 September 2016 / Accepted: 14 November 2017

Abstract Previous research has demonstrated that individual religious beliefs and practices may reduce the likelihood of underage alcohol consumption, but less is known about how the overall religious cultural influence of a religion may influence individual alcohol consumption behaviors. Using multilevel analyses on two waves of the National Study of Youth and Religion merged with county-level variables from the U.S. Census and the Religious Congregations and Membership Study, we find that a county's higher Catholic population share leads to more frequent underage drunkenness even after controlling for a wide range of individual and county-level variables. Contrary to other studies' findings discovered at individual level, a greater population share of conservative Protestants is also linked with higher level of underage drunkenness. This study highlights the importance of viewing religious influence on health behaviors as a contextual, cultural force.

Keywords Religious context · Deviance · Health · Youth development · Culture

✉ Fanhao Nie
fanhao.nie@dixie.edu

Xiaozhao Yousef Yang
xyang7@murraystate.edu

Daniel V. A. Olson
dolson@purdue.edu

[1] Department of Social and Behavioral Sciences, Dixie State University, P.O. Box 1099, Santa Clara, UT 84765, USA

[2] Department of Political Science and Sociology, Murray State University, 102 Curris Center, Murray, KY 42071, USA

[3] Department of Sociology, Purdue University, 700 W. State St, West Lafayette, IN 47907, USA

Published online: 18 December 2017

Introduction

Underage drinking has been identified by public policy makers as a major health issue consuming the intellectual and social lives of future generations at an alarming rate. Researchers estimate that about 1825 college students die each year as a result of alcohol-related injuries (Hingson et al. 2009; Turner et al. 2013). Additionally, each year an estimated 696,000 college students are assaulted by peers who are drinking and about 9700 young adults become victimized in alcohol-related sexual assaults (Hingson et al. 2005).

As we describe below, past studies find that regular worship attenders and those who say religion is important in their lives tend to less frequently use and abuse alcohol. However, religion is more than an individual-level phenomenon. Religious groups develop and sustain their own religious subcultures, subcultures that encompass beliefs, values, attitudes, and norms for behavior that range across topics as varied as the way one finds salvation to more mundane matters such as the age at which one should marry (e.g., Hout et al. 2001), how many children one should have (e.g., Lehrer 2004), how much college education one should pursue (e.g., Stroope et al. 2015), what political parties and policies one should support, and (the focus of this paper) how much (if any) alcohol one should consume.

Although religious subcultural values and norms are transmitted most directly to the followers of a religion, they may also have an indirect influence on the whole community of people who live alongside the religion's followers. This is especially likely when a religion's adherents make up a large portion of the individuals living in an area. In such cases, non-members of the religion are likely to interact with, work with, form friendships with, and even marry the followers of the religious group. In the course of these social interactions, it seems likely that some of the religious subcultural values (including the norms and attitudes about more mundane, non-supernaturalistic matters) will get transmitted to non-members and thus become part of the broader local subculture. For this reason we suspect that religion may influence underage drinking behavior (and many other health-related behaviors) not only through direct contact among members, but also indirectly through the second-hand exposure that that non-members experience when they interact with members in secular settings.

Note that we are suggesting that this religious influence includes, but may also be much more than, a "spill over" effect, an external influence on the behavior of non-members when they are exposed to religious group members. Additionally, we are suggesting, like Weber, that religious subcultural values can become part of local subcultures that even non-members internalize and participate in, not simply because they think their religious friends are watching or will find out, but because they also believe it is how a good person should act.

Using 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), we demonstrate whether or not religious contextual effects exist for underage problem drinking. More importantly, we are interested in seeing if these religious contextual effects also exist for youth whose

religion is a numerical minority in their area of residence. Thus, for example, if the relationship between Catholic population share and underage problem drinking behaviors also holds true for non-Catholic youth living in highly-Catholic areas, then it may be possible that the influence of county-level religious composition variables is not an aggregate result of a larger concentration of Catholics who have higher mean of drinking than peers from other religious traditions. Rather, it is more likely to be a result of some unique subcultural values and norms which have permeated into the fabric of everyday life for people sharing the same geographic space.

Literature Review

Many sociologists of religion have examined the linkages between religion and substance use. The general consensus is that *individual* religious involvement, such as church attendance, and *individual* religious salience, such as perceived importance of religion in life depresses substance use by exposing youth to religious values and norms, reducing associations with delinquent peers, and increasing attachments to rule-abiding individuals who discourage substance use and other deviant behaviors (Bahr 1998; Bahr et al. 1993; Bock et al. 1987; Brown et al. 2001; Chu 2007; Cochran 1993; Ford and Kadushin 2002; Jang and Johnson 2001; Jang et al. 2008).

However, comparatively less attention has been paid the potential *contextual*-level effects of local religious composition on youthful substance use. The major exception is the research building on Stark's well-known moral community hypothesis in which he stated that "religion is empowered to produce conformity to the norms only as it is sustained through interaction and is accepted by the majority as a valid basis for action" (Stark 1996, p. 164). In other words, Stark pointed out that religion may function as a moral community which reinforces the social norms and values to individuals and within this moral community, individuals may draw upon the broader religious subculture as something confirming and directive when acting. Some past studies confirmed the moral community hypothesis by showing that having more religious friends reduced the likelihood of using marijuana (Adamczyk and Palmer 2008; Hoffmann 2014) and involvement in religion-supported activities was associated with less alcohol use (Adamczyk 2012; Adamczyk and Felson 2012). Adamczyk and her colleagues describe this as a spillover effect that protects even non-religious adolescents who have religious friends from substance use (Adamczyk 2012; Adamczyk and Palmer 2008).

Based on the moral community hypothesis and relevant empirical research, one might speculate that when an area has a large amount of religious population, people living in that area tend to have less drinking problems. But will the *content* of a moral community matter? In other words, given the different values and norms inherent in different religions, if local subcultures come to be influenced by different kinds of religious values depending on which kinds of religious groups predominate in different areas, might this not also lead to different norms and values and different behavioral outcomes in different areas?

For instance, when it comes to alcohol consumption, the Catholic church believes in moderationism—drinking itself is not sinful as long as people practice the virtue of temperance to avoid excessive drinking (Blackburn 2008). In contrast, conservative Protestant leaders tend to set the bar higher by emphasizing abstentionism and believe that alcohol consumption in general is not a good behavioral choice. One of the Evangelical leaders, Gary Benedict, even suggested that it is better not to drink at all (Greene 2010).

Max Weber, in *The Protestant Ethic and the Spirit of Capitalism* (1930), was one of the first to argue that the predominance of different religious groups in different areas could affect the subcultural values of different areas in ways that affect the secular behaviors of everyone living in these areas, even whole countries and civilizations, e.g., the Protestant areas of Europe compared to the Catholic areas of Europe, India, and China.

Despite controversies, e.g., Robertson (1933), surrounding Weber's interpretations of Catholicism, Hinduism, etc., Weber makes two key points that are relevant to our analysis. First, the influence of religious beliefs can go beyond individual believers and distill into the cultural system of a society and thus influence not only individual followers but also the surrounding community. Second, the *content* of a religious context matters—different religious contexts dominated by different cultural values and norms can lead to very different life outcomes for all residents regardless of their own religious tradition. Therefore, when studying religious context, we also need to look into the *content* of the religions with a large presence in the area.

Some previous research has begun to explore ways that the *content* of religions may affect secular behaviors of people living in an area. For example, Beyerlein and Hipp (2005) draw on both civic community theory and Putnam's work on social capital (2006). They argue that the civic community theory implies that the presence of different religious groups or subcultures in an area may greatly influence the life outcomes for people living in that area. According to this theory, some religious groups, such as the Catholics and Mainline Protestants, value worldliness and they thus seek to better this world through reaching out to the underprivileged in the community. Consequently, the large presence of these civically engaged religious denominations in a community may lead to more solid *bridging* ties (Putnam 2006) between different groups, more effective collective efficacy in resolving issues like crime and poverty, and thus better outcomes to the overall community. By contrast, some religious groups, such as the conservative Protestants, believe in otherworldliness and thus they shift resources from saving the wider community to saving individual souls and bonding with people from their own religious group. Thus, they argue, in communities dominated by conservative Protestants, there tends to be less investment in social services and public goods. This, in turn, may lead to a wide range of poor individual and communal outcomes.

This line of thinking has found solid empirical supports. Prior research found that regions with a large presence of conservative Protestants was associated with higher violent and property crime rates (Desmond et al. 2010), while a large presence of civically engaged religious denominations was tied with less violent crimes (Ulmer and Harris 2013). A similar pattern was even found for health outcomes: the

dominant presence of conservative Protestant congregations in a county was linked with higher rates of mortality. In contrast, the larger presence of mainline Protestant or Catholic congregations was associated with lower rates of mortality (Blanchard et al. 2008).

Could these religious contextual effects on crime and health also apply to *underage problem drinking*? In other words, could a county with a large number of conservative Protestants increase the risk of underage alcohol consumption? Or perhaps, as many prior studies have suggested, conservative Protestant youth living in these areas have higher level of religiosity and less deviant behaviors (e.g., Adamczyk and Palmer 2008) which may cause them to drink less. And what about the more civically engaged denominations, such as the Catholics? Would a large Catholic presence lead to more community efficacy, as the civic community theory suggests, which would then lead to fewer underage alcohol consumption problems? Or would the well-known permissive attitude toward alcohol within Catholic subculture (e.g., Greeley et al. 1980) increase the risk of underage drinking for adolescents who are not even Catholics but happen to live in an area with many Catholics?

Although studies have examined the effects of religious context on crime and other variables, not many studies have explored how religious context may affect drinking behavior. Using states as their units of analysis, Holt and colleagues found that states with a higher Catholic population share had higher aggregate drinking rates. By contrast, higher state-level Evangelical Protestant adherence rate was associated with lower aggregate drinking rates (Holt et al. 2006). But because Holt et al.'s analyses were only done at the state level, one cannot separate out the possibly different context-level and individual-level effects and thus the results potentially suffer from an erroneous interpretation due to the ecological fallacy. Additionally, Holt et al. simply report bivariate associations without statistical controls for other variables that might cause spurious correlations between the proportion of Catholics and rates of drinking.

Our analyses below make use of multilevel models that enable us to separate the individual level effects of belonging to a particular religious tradition (e.g., Catholic or conservative Protestant) from the contextual level effects of the religious composition of geographic areas (counties) where the respondents live. Although the research cited above gives us some ideas of what to expect, not all of this research points in the same direction. In particular, conservative Protestants are known to have strong anti-alcohol positions and individual conservative Protestants drink less than do others. But other research, e.g., Desmond et al. (2010), finds that areas dominated by conservative Protestants have higher crime rates. Perhaps conservative Protestantism either contributes to, or is associated with other factors that contribute to, the development of local subcultures that, ironically, are more permissive with regard to the very behaviors that conservative Protestantism seeks to limit among its membership. Thus, while our research is theoretically guided and informed by the results of others, our analyses are partly exploratory and driven by curiosity to uncover which, if any, of the various explanations described above are best at explaining our results.

Method

Data

Our data come from three sources. First, we use wave 1 and wave 2 of the National Study of Youth and Religion (NSYR) for all individual-level measures. The NSYR is a nationally representative telephone survey of 3290 youth whose 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 are multi-waved, panel data. Wave 1 of the NSYR was conducted in 2003, when the respondents were aged 13–17. For each teen respondent, a parent was also interviewed concerning the family environment in which the teen 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 which capture the respondents' life during formal adulthood. However, given that our key interest lies in understanding underage drinking (before age 21), for this study, we will only use wave 1 and wave 2 of the NSYR.

Although the NSYR data provide a great deal of religious and delinquency measures which serve the purposes of our study, it originally did not contain any contextual-level data. With the permission of the principal investigators of the NSYR, we merged the NSYR with county-level U.S. Census and the county-level data in the Religious Congregations and Membership Study (RCMS) so that a multi-level approach to the NSYR data is now possible.

While the U.S. Census covers a variety of contextual-level variables, it does not have county-level variables on religion which are only available in the RCMS. Both the 2000 and 2010 RCMS contain data on the number of congregations and adherents (official members plus children of members in denomination, like Baptists, that do not have child membership) for participating religious groups in each county of the United States (Grammich et al. 2012). The RCMS contains data on most denominations, especially the larger denominations, and thus the RCMS data include most, but not all, religious adherents in each county. From the RCMS data we can calculate a variety of important religious contextual measures, such as rates of adherent per 1000 population in a county for all denominations together as well as for each specific denomination considered separately and for each of several groupings of similar denominations described below.

Measurements

Focal Dependent and Independent Variables

Our dependent variable is frequency of getting drunk—problem drinking, which is measured across the waves. The item measuring frequency of getting drunk is worded "how often, if ever, have you gotten drunk in the last year?" The response categories are coded as: 1 = never, 2 = once or twice, 3 = a few times, 4 = every

couple of weeks, 5 = once a week, and 6 = more than once a week. Originally, this variable did not include respondents who never drank alcohol in non-religious settings. However, excluding these respondents may reduce the sample by 2089 cases or 62% in wave 1, which may significantly affect our results. Therefore, we recoded these 2089 cases into the "never" category for the question on frequency of getting drunk. Probably due to the young age of the respondents, the distribution of our dependent variables on problem drinking is skewed, which prompt us to take the natural logarithms of this variable for all the future analyses.

Our key independent variables are the log transformed adherence rate of particular denominational groupings of religious denomination per 1000 population of a county calculated from the 2000 RCMS data for the counties in which each NSYR respondent lives. The classification of denominations into denominational traditions was done in ways that parallel the classification used in the popular Steensland et al.'s (2000) classification of denomination in the US 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, we found through exploratory analysis that only the conservative Protestant and Catholic population share variables had strong relationships to individual-level alcohol-related behavior. This is not surprising since past literature, including the results we cite in our literature review above, most commonly finds associations between alcohol consumption and membership in, or the presence of, either conservative Protestantism or Roman Catholicism. Thus, in our analyses below we focus only on these two key independent variables.

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). We summed the adherents from these denominations together and divided by the county population share to calculate conservative Protestant population share. Because both population share variables have a substantial positive skew, our analysis uses 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 used in other studies. The RCMS data have no measures of overall attendance rates, but usually church attendance rates have been found to be related to the total percent of the population that belong to some religious traditions, a variable that is in the RCMS data. 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.

Control Variables

We control for a variety of variables which, as prior research suggests, may influence one's drinking 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 enlightened by prior research which suggested that some contextual-level socioeconomic characteristics may deeply impact individual conformity and deviance (e.g., Leventhal et al. 2009). We also include variables that might be associated with conservative Protestant or Catholic population shares that might explain away associations between our key independent variables and drinking behavior.

For individual-level religious characteristics, we control for the youth respondents' church attendance frequency, frequency of reading religious scriptures alone, frequency of praying alone, importance of religion, and religious affiliation. The question for church attendance frequency is "about how often do you usually attend religious services?" The response categories are 0 = never, 1 = a few times a year, 2 = many times a year, 3 = once a month, 4 = 2–3 times a month, 5 = once a week, 6 = more than once a week. The question for the frequency of reading religious scriptures alone is "how often, if ever, do you read from to yourself alone?" The response categories range from 1 = never to 7 = many times a day. The question for frequency of praying alone is "how often, if ever, do you pray by yourself alone?" The response categories are coded in the same way as reading scripture alone. The question for importance of religion (salience) is "how important or unimportant is religious faith in shaping how you live your daily life?" The response categories are 1 = not important at all, 2 = not very important, 3 = somewhat important, 4 = very important, and 5 = extremely important. These variables are measured in both wave 1 and wave 2 of the survey.

Individual religious affiliation comes from an item used in the NSYR where respondents were asked to indicate which, of a list of religious groups, describes them the best. We used dichotomous indicator variables to code the following religious affiliations measured at 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 but, in order to keep our measures consistent across waves, we recoded both of these subcategories into a black Protestant category.

Controlling for individual-level religious affiliations is important. It is possible that the share of Catholics in a county's population causes an individual's higher drinking level only because: when there are more Catholics in a county, one is more likely to be a Catholic just by chance. If each Catholic as an individual tends to drink more (thus higher average for all Catholics in this county), it's not the share of Catholics itself (cultural impact) that contributes to one's higher level of drinking; instead, it's only one's higher likelihood of being a Catholic (the numeric effect of regressing to the group mean).

There are two ways to resolve this possible spuriousness, controlling for the average drinking level of *Kth* denomination ($\sum Y_{ijk}/N_j$), or controlling for one's own religious affiliation (the likelihood of $P(k = 1) = E(K_{ij})$). Although further analyses (available upon request) showed no significant differences between these two options, we used respondents' religious affiliations as a means of controlling for this potentially confounding effect. Moreover, this method lets us see if the individual-level effect of belonging to a religion is different than the contextual-level effect that that religion has on all people in the county when that religion is large.

Besides controlling for the religious characteristics of the youth, we also control for the religious composition of the youth's social network which includes the number of friends that the respondent claims have "similar" beliefs with regard to religion, 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 in trouble for cheating, fighting, or skipping classes. All these social network variables were available only for wave 2 of the survey. For each of the variables respondents could indicate up to 5 friends in response to the question.

Because an adolescent's relationship to their parents might heavily affect underage drinking we control for a number of NSYR 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 reverse the 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 reverse coded the response categories to range from 1 = not upset at all to 5 = extremely upset. Youth respondents were also asked: if your parent(s) find(s) out you've done something wrong, how often does he/she/do they discipline you? We reverse coded the response categories to range from 1 = never to 5 = always. The variables described in this paragraph were only in wave 1 of the survey.

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 residence (the four major US census regions) which can be seen in Table 1. We also control for personality characteristics and moral-theological orientations. Youth were asked "do you usually have a good idea of what is right and wrong in most situations". The response categories are 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?" We grouped the five possible responses into two categories so that a response of either "follow what God or Scripture says is right" or "follow advice of adult" were coded as 1 because both responses involve relying on the (an) authority figure(s). We coded the other three possible responses as 0.

Table 1 Descriptive statistics

Variable	N	Mean	SD	Min., Max
Dependent variables (logged)				
Drunkenness frequency (w1)	3366	.25	.46	0, 1.79
Drunkenness frequency (w2)	2582	.58	.62	0, 1.79
Key independent variables (logged)				
Rates of Catholic per 1000 population (w1)	3345	4.87	1.18	0, 6.62
Rates of conservative Protestant per 1000 population (w1)	3366	4.69	.91	.32, 6.88
Rates of Catholic per 1000 population (w2)	2549	4.85	1.19	0, 6.79
Rates of conservative Protestant per 1000 population (w2)	2549	4.70	.91	0, 6.88
Individual-level religious characteristics				
Church attendance (w1)	3365	3.29	2.16	0, 6
Importance of religion (w1)	3363	3.47	1.12	1, 5
Reading scriptures alone (w1)	3358	2.57	1.73	1, 7
Praying alone (w1)	3360	4.33	2.01	1, 7
Conservative Protestant (w1)	3370	.31	.46	0, 1
Mainline Protestant (w1)	3370	.10	.30	0, 1
Black Protestant (w1)	3370	.12	.32	0, 1
Catholic (w1)	3370	.24	.43	0, 1
Jewish (w1)	3370	.03	.18	0, 1
Mormon (w1)	3370	.02	.14	0, 1
Not religious (w1)	3370	.12	.33	0, 1
Other religion (w1)	3370	.08	.27	0, 1
Indeterminate (w1)	3370	.02	.15	0, 1
Church attendance (w2)	2595	2.55	2.22	0, 6
Importance of religion (w2)	2595	3.27	1.23	1, 5
Reading scriptures alone (w2)	2577	2.28	1.60	1, 7
Praying alone (w2)	2579	3.96	2.01	1, 7
Conservative Protestant (w2)	2596	.26	.44	0, 1
Mainline Protestant (w2)	2596	.08	.27	0, 1
Black Protestant (w2)	2596	.07	.25	0, 1
Catholic (w2)	2596	.19	.40	0, 1
Jewish (w2)	2596	.04	.19	0, 1
Mormon (w2)	2596	.02	.14	0, 1
Not religious (w2)	2596	.17	.38	0, 1
Other religion (w2)	2596	.02	.15	0, 1
Indeterminate (w2)	2596	.15	.36	0, 1
Individual-level demographic characteristics				
Female (w1)	3370	.50	.50	0, 1
White (w1)	3349	.66	.47	0, 1
Age (w1)	3369	15.02	1.40	13, 17
Age (w2)	2604	17.70	1.36	16, 20
Good grades (w1)	3235	.68	.47	0, 1

Table 1 continued

Variable	N	Mean	SD	Min., Max
Good grades (w2)	2201	.71	.46	0, 1
Frequency of misconducts (w1)	3366	4.10	1.48	1, 6
Frequency of misconducts (w2)	2592	3.83	1.46	1, 6
Confused about morality (w1)	3362	2.60	.79	1, 3
Respecting authority figures (w1)	3329	.61	.49	0, 1
Respecting authority figures (w2)	2581	.59	.49	0, 1
South (w1)	3366	.41	.49	0, 1
West (w1)	3366	.20	.40	0, 1
Midwest (w1)	3366	.16	.37	0, 1
Northeast (w1)	3366	.23	.42	0, 1
South (w2)	2550	.41	.49	0, 1
West (w2)	2550	.19	.40	0, 1
Midwest (w2)	2550	.16	.37	0, 1
Northeast (w2)	2550	.24	.42	0, 1
Social network characteristics				
Number of friends with similar religious beliefs (w2)	2463	3.33	1.68	0, 5
Number of friends from the same religious group (w2)	2549	1.10	1.58	0, 5
Number of friends joining religious youth groups (w2)	2478	1.34	1.57	0, 5
Number of friends not religious (w2)	2463	1.18	1.53	0, 5
Number of friends doing drugs (w2)	2554	1.79	1.80	0, 5
Number of friends making troubles (w2)	2539	1.32	1.62	0, 5
Parent demographic characteristics				
Educational attainment (w1)	3365	2.60	.64	1, 3
Income (w1)	3164	5.91	2.93	1, 11
Married (w1)	3363	.68	.47	0, 1
Parent–child relationship				
Family stress (w1)	3364	3.05	.90	1, 4
Closeness to child (w1)	3367	5.37	.81	1, 6
Upset if child skips school (w1)	3240	4.54	.75	1, 5
Upset if child has sex (w1)	3320	4.18	1.12	1, 5
Upset if child uses drugs (w1)	3364	4.74	.61	1, 5
Will punish if child does wrong (w1)	3358	3.80	1.16	1, 5
County-level characteristics (logged)				
Rates of 25 + adults with a college degree (w1)	3336	.14	.05	.03, .31
Median household income (w1)	3336	10.64	.24	9.71, 11.33
Poverty rates (w1)	3336	.12	.05	.02, .41
Unemployment rates (w1)	3336	.38	.04	.20, .47
Rates of single mother household (w1)	3336	.07	.02	.02, .18
Residential stability (w1)	3336	.43	.05	.28, .56
Urbanization (w1)	3366	.55	.17	0, .69
Proportion male (w1)	3336	.40	.01	.36, .41

Table 1 continued

Variable	N	Mean	SD	Min., Max
Proportion black (w1)	3336	.11	.11	0, .61
Rates of 25 + adults with a college degree (w2)	2549	.14	.05	.03, .31
Median household income (w2)	2549	10.64	.24	9.71, 11.33
Poverty rates (w2)	2549	.11	.05	.02, .41
Unemployment rates (w2)	2549	.38	.04	.21, .47
Rates of single mother household (w2)	2549	.07	.02	.02, .18
Residential stability (w2)	2549	.43	.05	.27, .56
Urbanization (w2)	2549	.55	.17	0, .69
Proportion male (w2)	2549	.40	.01	.36, .47
Proportion black (w2)	2549	.11	.11	0, .61

These responses are "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.

We control for the parent respondents' 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 $10 K to 11 = more than $100 K, and marital status (1 = married, 0 = other). These parental demographic variables were only present in wave 1 of the NSYR.

Finally, we control for county-level variables drawn from the U.S. Census including rates of adults 25 and above with a four-year college degree, median household income, poverty rates, unemployment rates, rates of single mother household, residential stability—rates of residents who have not changed residence during the previous 5 years, rates of urbanization, proportion male, and proportion African American. Table 1 displays the mean, standard deviation, and range of all the variables described above.

Plan of Analysis

It is a well established fact that different kinds of denominations are concentrated in different parts of the country (Stark and Bainbridge 1985). This leads individuals to cluster among geographic units that have auto-correlated characteristics within themselves, and the common assumption in regression (independent and identical distribution of the variables) is violated. Spatial auto-correlation is a potential source of bias that artificially deflates the variances and decreases the confidence intervals of an estimate, while temporal auto-correlation is another source of similar bias.

In social sciences, observations are rarely distributed free of clustering at higher-level units, and these contextual-level effects have proven (Yang et al. 2015) to

influence substance use beyond the effects of individual characteristics. The respondents in the survey data we use are clustered in counties, a feature that necessitates us to adopt mixed-effect modeling (aka. hierarchical modeling), which allows lower level parameters to randomly vary across higher level units. In particular, we use a growth curve model, a form of mixed-effect models that clusters the time (survey wave) effects within each individual respondent, and the individual effects within the same county.[1] For example in this study:

$$y_{tij} = \beta_{0ij} + \beta_{1ij}(religiosity) + \beta_{2ij}(County\_Catholics) + \epsilon_{tij},$$
$$\beta_{0ij} = \pi_{ij} + r_{ij},$$
$$\pi_{ij} = \alpha_j + \tau_j,$$

where *y_tij* is the frequency of drunkenness of *i*th individual in *j*th county at wave *t*, and the intercept of grand mean drunkenness now represents a mean drunkenness level differs across each individual and each county, after holding individual religiosity and the county's Catholic population share at zero. After this operation, the variances and residual then becomes level specific, with τ_j represents the variance at county level, *r_ij* represents the variance at individual level, and ε_tij the residuals.

All data preparation and model analyses were conducted in Stata 14. Before performing the main analyses, multiple imputation was conducted to handle the missing data by creating five additional samples for a completed dataset based on the chained multiple imputation method, which 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 be otherwise biased due to sample inflation. This method allows the estimation of parameters as the average of coefficients from the imputed datasets, 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 datasets (Rubin 1996). Further analyses (available upon request) showed no substantial differences in our key findings before and after multiple imputation.

[1] We chose to use multilevel modeling because it provides the most accurate estimates of the effects of individual, versus county-level variables. Although in many cases there are only one or a few respondents in each county, there are a few counties that have many respondents. It is true that when we ran similar OLS regression models we obtain similar substantive results, but the multilevel models do a better job of ensuring that the county-level variables in those counties with many respondents do not have a disproportionate effect on the results.

Results

Descriptive Statistics

Table 1 displays a detailed account of the descriptive characteristics of all variables we use in the multilevel regression models. A major, but unsurprising, result in Table 1 is that as the respondents aged from early teens to late teens between survey waves, the mean frequency of getting drunk went up from 0.25 to 0.58 indicating more frequent drunkenness.

Mixed-Effect Modeling

Table 2 presents a batch of models for underage drunkenness on Catholic population share and conservative Protestant population share. We start with the Catholic population share which is placed on the left side of the table. The baseline model included only survey wave and population share, it also allowed intercept to vary across county and individual units. Thus, it constitutes an elementary form of growth curve modeling which serves the purpose of detecting the changes of underage drunkenness over time. For underage drunkenness, there is a highly significant ascending trend between 2003 and 2005 when the respondent cohort grew from 13 to 17 years old to 15–19 years old, despite that they should still be considered as under the legal limit of age 21 for purchasing or drinking alcoholic products. The temporal increase of drinking is 0.34 for the logarithm drunkenness. Looking at model 1 for Catholic population share, an interesting phenomenon starts to emerge. It shows that the Catholic population share in a county is associated with more frequent underage drunkenness. For every 1 percent increase in the Catholic population share, the frequency of underage drunkenness increases by 0.03 percent. The intra-class correlation (ICC) after controlling for growth curve is 46.7%[2] at individual level, indicating that individual differences account for 46.7% of the variances in underage drunkenness while temporal increase is responsible for 53.3% of the variances. As is in all other models, the ICC at county level here is too tiny to be even rounded to the second decimal. This is due to the nature of the survey where the number of counties is close to or even more than individuals. But we retain the three-level specification to allow partial pooling on counties.

Model 2 added the individual religious affiliation controls. By doing so, we are more confident to assert that the religious contextual effect on drunkenness found in model 1 may not be due to the numerical accumulation of a certain religious population in an area; instead, the religious contextual effect on drunkenness could result from the social and cultural influence from some dominant religious subculture. From model 2 we can see that, even after controlling for individual religious affiliations, especially individual Catholic identity, the Catholic population share still maintains its boosting effect on underage drunkenness ($\beta = .02, p < .05$).

[2] $$ICC_1 = \frac{\tau_{11}}{\tau_{11} + \tau_{22} + \epsilon}$$

where τ_{11} means variances at level 2, τ_{22} means variances at level 3, and ϵ means residuals.

Table 2 Multilevel regression models predicting drunkenness

	Catholic population share on drunkenness				Conservative Prot. population share on drunkenness			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Independent variables								
Ln. religious context	.03 (.01)***	.02 (.01)*	.01 (.01)	.02(.01)*	− .02 (.01)*	− .01 (.01)	.03 (.01)**	.04 (.01)**
Religious context * focal group identity				.02 (.02)				0 (.02)
Survey wave	.34 (.01)***	.31 (.01)***	.10 (.02)***	.10 (.02)***	.33 (.01)***	.31 (.01)***	.10 (.02)***	.10 (.02)***
Individual-level controls								
Conservative Protestant		− .16 (.02)***	0 (.02)	.02 (.02)		− .17 (.02)***	− .01 (.02)	.0 (0)
Mainline Protestant		− .04 (.03)	.02 (.02)	.05 (.02)		− .05 (.03)	.01 (.04)	.02 (.02)
Black Protestant		− .22 (.03)***	− .04 (.03)	− .04 (.03)		− .23 (.03)***	− .05 (.03)	− .04 (.03)
Catholic		− .08 (.02)***	.02 (.02)	− .04 (.09)		− .08 (.02)***	.03 (.02)	.03 (.02)
Jewish		.06 (.04)	.03 (.04)	.04 (.04)		.07 (.04)	.04 (.04)	.04 (.04)
Mormon		− .30 (.05)***	− .08 (.04)	− .04 (.04)		− .31 (.06)***	− .06 (.05)	− .06 (.04)
Other religion		− .07 (.04)	.03 (.03)	− .02 (.06)		− .07 (.04)	− .02 (.04)	− .02 (.04)
Indeterminate		.10 (.11)	− .13 (.13)	.01 (.03)		− .10 (.12)	− .13 (.13)	.06 (.06)
No religion (ref.)								
Church attendance			− .01 (.01)**	− .01 (.01)**			− .01 (.01)***	− .01 (.01)*
Reading scriptures alone			− .02 (.01)**	− .02 (.01)**			− .01 (.01)**	− .01 (.01)**
Praying alone			.01 (0)	.01/(0)			0 (0)	.01 (0)
Importance of religion			− .01 (.01)	− .01 (.01)			− .01 (.01)	− .01 (.01)*
# of friends with similar religious beliefs			0 (0)	0 (0)			0 (0)	0 (0)
# of friends in the same religious group			.01 (.01)*	.01 (.01)			.01 (.01)*	.01 (.01)*
# of friends in religious youth groups			− .01 (.01)	− .01 (.01)			− .01 (.01)*	− .01 (.01)*
# of friends not religious			− .01 (.01)	− .01 (.01)			− .01 (.01)*	− .01 (.01)*
# of friends doing drugs			.08 (.01)***	.08 (.01)***			.08 (.01)***	.08 (.01)***
# of friends making troubles			.02 (.01)**	.02 (.01)**			.02 (.01)***	.02 (.01)***
Female			.01 (.01)	.01 (.01)			.01 (.02)	.01 (.01)

Table 2 continued

	Catholic population share on drunkenness				Conservative Prot. population share on drunkenness			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
White			.13 (.02)***	.12 (.02)***			.13 (.02)***	.13 (.02)***
Age			.05 (.01)***	.05 (.01)***			.05 (.01)***	.05 (.01)***
Good grades			− .01 (.01)	− .02 (.02)			− .01 (.01)	− .01 (.01)
Frequency of misconduct			.07 (.01)***	.07 (.01)***			.07 (.01)***	.07 (.01)***
Confused about morality			− .01 (.01)	− .01 (.01)			− .01 (.01)	− .01 (.01)
Respecting authority figures			− .05 (.01)**	− .04 (.01)**			− .05 (.01)**	− .04 (.01)**
Parent education			− .01 (.01)	− .02(.01)			− .01 (.01)	0 (.01)
Parent income			.01 (.01)***	.01 (.01)***			.01 (.01)***	.01 (.01)***
Parent married			− .01 (.01)	.01 (.02)			− .01 (.01)	− .01 (.01)
Upset if child skips class			− .02 (.01)*	− .02 (.01)*			− .02 (.01)*	− .02 (.01)*
Upset if child uses drugs			− .06 (.01)***	− .06 (.01)***			− .06 (.01)***	− .06 (.01)***
Upset if child has sex			− .07 (.01)***	− .07 (.01)***			− .07 (.01)***	− .07 (.01)***
Parent punitive			− .01 (.01)	− .01 (.01)			− 0.01 (.01)	− 0.01 (.01)
Parent–child closeness			− .02 (.02)	− .01 (.01)			− .02 (.02)	− .02 (.02)
Family stress			.01 (.01)	.01 (.01)			.01 (.01)	.01 (.01)
County-level controls								
Midwest (ref.)								
South				− .04 (.03)				− .04 (.03)
Northeast				− .01 (.02)				− .01 (.02)
West				− .02 (.03)				− .02 (.03)
L.n. rates of college education among adults				− .10 (.28)				0 (.31)
L.n. median household income				− .04 (.07)				.05 (.08)
L.n. poverty rates				.32 (.38)				.32 (.38)
L.n. unemployment rates				− .25 (.42)				− .5 (.4)
L.n. rates of single mother household				− 1.71 (.01)**				− 1.71 (.01)**

Table 2 continued

	Catholic population share on drunkenness				Conservative Prot. population share on drunkenness			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
L.n. residential stability				− .16 (.24)				− .16 (.24)
L.n. urbanization				− .01 (.06)				.05 (.07)
L.n. proportion male				− .10 (.10)				.01 (.94)
L.n. proportion black				.25 (.11)*				.06 (.12)
Level 2 variance (individuals)	0.35	0.33	0.15	0.15	0.35	0.33	0.27	0.15
Level 3 variance (counties)	0	0	0	0	0	0	0	0
Residual	0.4	0.4	0.39	0.38	0.41	0.41	0.4	0.38
Number of individual	3369	3369	3369	3369	3369	3369	3369	3369
Number of counties	3728	3728	3728	3728	3728	3728	3728	3728

Table entries are regression coefficients with standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

When treating the religious nones as the reference group, all but the Jewish have negative signs in front of their coefficients suggesting less drunkenness compared to the religious nones. The addition of these individual religious affiliation variables contributes to a 5.7% drop in individual-level ICC or Proportional Reduction in Error (PRE),[3] which suggests that these newly added variables collectively reduced the unexplained variances in drunkenness by 5.7% at the individual level.

Model 3 added all the other individual-level controls. Compared to model 2, the statistical significance of many religious affiliations (e.g., conservative Protestants) lost their significance in model 3, which is understandable given that individual religiosity is now controlled. When it comes to individual religiosity, church attendance frequency and religious scriptures reading frequency both exert statistically significant yet small inhibiting effects on drunkenness. Another visible change is the coefficient of time, which has dropped from 0.31 in model 2 to only 0.10 suggesting that the most basic individual demographic differences can explain a very big portion of the surge in underage drunkenness in two years' gap. The addition of these individual-level controls substantially reduced the variances in drunkenness at the individual level (PRE = 54.5%).

Model 4 added county-level socioeconomic controls. Regarding our key independent variables, the impact of Catholic population share ($p < .01$) on underage drunkenness is robust even after considering a host of control variables at both individual and county levels. For every 1 percent increase in the Catholic share, the frequency of drunkenness increases by 0.02 percent. A cross-level interaction between the Catholic identity and Catholic population share is also included in model 4. The lack of statistical significance of this interaction term suggests that the Catholic contextual effect on drunkenness is not limited to the Catholic population itself; instead, people from other religious backgrounds are also subject to the boosting effect of Catholic population share on drunkenness.

Table 2 also features the same set of models on the conservative Protestant contextual effect on drunkenness. The measurement operations, model design, and parameters should subject to the same interpretation as for the Catholic population share. To save space, we will only interpret the most significant and important findings.

The conservative Protestant population share initially has a negative effect on drunkenness, but the effect ceased to be significant when individual religious affiliations were controlled. In model 3, after controlling for all the individual-level variables, especially individual religiosity, the sign of the conservative Protestant population share was reversed to become significantly positive. We suggest from this result that the contextual influence of conservative Protestantism is different from its influence on individuals. The initial negative association between the conservative Protestant population share and underage drunkenness is a product of

[3] $$\text{PRE} = \frac{\tau_{11}^{'} - \tau_{11}}{\tau_{11}^{'}}$$

where $\tau_{11}^{'}$ means the original individual-level variances in model 1.

stronger individual religiosity. Once individual religiosity is accounted for, such association is reversed.

This significant and positive association continues to present in model 4 after adding county-level controls to the model. In model 4, every 1 percent increase in the conservative Protestant population share translates into 0.04 percent increase in drunkenness frequency ($p < .01$). Could this positive effect result from the non-conservative Protestant youths who live in a conservative Protestant county? The answer is unlikely because the interaction between the conservative Protestant population share and one's own identity as a conservative Protestant is not significant, nor is conservative Protestant as an individual religious identity as compared to the nones. As with the Catholic population share, individual religiosity, such as church attendance frequency, is negatively related to drunkenness.

Our final models in Table 2 show that the religious population share variables have statistically significant relationships with frequency of drunkenness. But how large are these effects. Given that the variables have been transformed by taking natural logs, the regression coefficients are hard to interpret in any intuitive way. We use Table 3 as a way to assess the effect size of the population share variables. We calculated how many centiles the predicted value of the dependent variable ($\hat{y}$) change, when the independent variable, Catholic or conservative Protestant population share, changes from its 10 percentile to 90 percentile. As Table 3 shows, if the county-level conservative Protestant population share changes from − 1.37 (the 10th percentile) to 1.19 (the 90th percentile) and all other variables are kept at their average values, an underage person's drunkenness level is predicted by the model to jump from .2877 (the 48th percentile of the distribution of predicted values of drunkenness) to .3753 (the 58th percentile)—a 10 percentile increase. If the logged Catholic population share changes from its − 1.63 (its 10th percentile) to 1.16 (its 90th percentile), and all other variables are kept at their average values, an underage person's drunkenness level is predicted to increase by 7 percentile points.

Table 3 Predicted percentile changes in dependent variable by changes in denominations' population share

	Drunkenness conservative Prot.	Drunkenness Catholic
10th percentile x	− 1.3733	− 1.6339
90th percentile x	1.1859	1.1557
$\hat{y}$ ~ 10th percentile x	0.2877	0.3028
$\hat{y}$ ~ 90th percentile x	0.3753	0.3615
percentile of $\hat{y}_{10th}$	48	50
percentile of $\hat{y}_{90th}$	58	57
Absolute y centile change	10	7

Conclusion and Discussion

Taken together, in this study, we find that even after controlling for various individual and county-level variables, Catholic population share is still linked with more frequent underage drunkenness. We also conclude that this Catholic contextual effect is not due to a large concentration of Catholics who on average have one of the most frequent drinking behaviors—the positive effect of Catholic population share on drinking behaviors even exists for the non-Catholic youth and this remains true even after controlling for individual religious affiliations. With the scope of our data, this result suggests that the religious contextual effect might go far beyond the aggregate-level theological beliefs and practices; rather, it could become a subculture influencing citizens within a given geographic space regardless of religious group membership.

This line of thinking is further supported when a positive effect of conservative Protestant population share is found for frequent underage drunkenness and this effect also exists for youth who are not conservative Protestants but live in a county with a large conservative Protestant presence. The boosting effect of conservative Protestant population share on underage problem drinking might contradict some prior research on the dampening effect of conservative Protestantism on youth delinquency, especially alcohol consumption (e.g., Regnerus 2003; Holt et al. 2006).

Consistent with what Holt and colleagues found, an initially significant and negative association was found between conservative Protestant population share and underage drunkenness when the other controls were not included in the model. However, the coefficient of conservative Protestant population share turned significantly positive only after the individual-level religious characteristics were added to the model, which indicates that the previously-assumed protective effect against substance use within an conservative Protestant moral community was actually the effect of individual religiousness. So what might explain the boosting effect of conservative Protestant population share on underage drunkenness?

Previous studies suggested an association between conservative Protestantism and lower socioeconomic outcomes resembling a social disorganization (e.g., Beyerlein 2004; Glass and Levchak 2014). Could the poorer socioeconomic outcomes associated with a large concentration of conservative Protestants contribute to the more frequent underage drunkenness? As one can see, even after taking county-level socioeconomic outcomes into consideration, the positive relationship between conservative Protestant population share and underage drunkenness remains significant. Therefore, the social disorganization approach fails to resolve this puzzle.

Another possible explanation might be that due to the strict prohibition against alcohols within the conservative Protestant culture, those who break the norms against drinking might face an anomie or a lack of control following a drinking episode contributing to heavier drinking in the future (Bock et al. 1987; Mizruchi and Perruci 1962). However, even this explanation is refuted as one can see that the interaction between conservative Protestant population share and being a

conservative Protestant is not significant to drunkenness, which suggests that both the conservative Protestants and the others are subject to the conservative Protestant contextual effect on drunkenness. In other words, there is no such an anomie-after-drinking scenario unique to the conservative Protestant subculture.

Considering the persistently significant effect of conservative Protestant population share on drunkenness, we tend to believe that within the scope of our data and to the best of our knowledge, we have already exhausted all the possible explanations to the boosting effect on drunkenness from a conservative Protestant context. Therefore, we consider it an intriguing area which needs future research to better explore.

Theoretically, our study augments to the moral community hypothesis of Stark. In his original work, Stark implied that all religions, regardless of the differences between different religions in terms of values and norms, may promote *positive* social behaviors (Stark 1996). Our study reveals that the content of a religion matters as different religions may bring very different cultural values and norms toward substance use and consequently not all religions may constitute as the moral community. In fact, the dominant presence of some religions at the contextual level may even contribute to more deviant behaviors, such as we found that a greater Catholic population share may lead to more underage drunkenness.

The higher level of drunkenness found in counties with a large concentration of Catholics may also challenge the civic community hypothesis which argues that the focus on community efficacy inherent in the Catholic culture may lead to better life outcomes in a predominantly Catholic area (Beyerlein and Hipp 2005). Perhaps, the bridging capital which is valued by the Catholics according to the civic community hypothesis may backfire and only facilitate the transmission of the drinking subculture from the Catholics to some other religious groups whose attitude toward drinking is initially more prohibitive. Our study has opened a possible avenue for future research to explore which may contribute to a better understanding of the civic community hypothesis.

Nevertheless, our study is not without limitations. We would expect to have data on the respondents' ethnic background. Prior research has pointed out that there is a strong connection between an ethnic Irish American identity and frequent drinking behaviors (Greeley et al. 1980), which indicates that drinking is not only embedded in one's religious identity but ethnic membership as well. Nevertheless, due to data limitation, we are not able to control for the respondents' ethnicity. Future research may want to look into the possible intervening effect of ethnicity, especially the Irish ethnicity, on Catholic population share and drinking behaviors.

Additionally, although our study contributes to a better understanding of religious context and underage drinking problems, the results may only apply to the U.S. social and cultural context. To further exploit the advantages of multilevel analyses, future studies may look into how the relationship between religious context and youth substance use might work in the non-Judeo-Christian context. As we know, many other religions, such as Islamism and Buddhism, also have strict values against alcohol consumption. Would a Buddhism context reduce underage drinking? And would this effect extend to youth who are not Buddhists but live in an

area with a strong Buddhism influence? Future research could look into these questions and diversify our knowledge on religious context.

In conclusion, our results strongly suggest that more research needs to focus on the religious contextual effect on youth substance use behaviors. Our research distinguishes itself from prior research which exclusively focuses on the individual, theological aspect of religious influence on substance use. By contrast, our research contributes to a renewed way of understanding religious influence by echoing the fundamental arguments made by the pioneer of this discipline—macro-level religion is far more than individual religiosity being lumped together; rather, it functions more as a subcultural force instilling into the fabrics of people's everyday life. In addition, our study results also suggest that the subcultural impacts of religion might be particularly salient when an area is infused with the Catholic or conservative Protestant subcultural values and norms. These results offer great implications and opportunities to future academic research and community initiatives.

References

Adamczyk, A. 2012. Extracurricular activities and teens' alcohol use: The role of religious and secular sponsorship. *Social Science Research* 41: 412–424.

Adamczyk, A., and J. Felson. 2012. The effect of religion-supported programs on health-related behaviors in adolescence. *Review of Religious Research* 54(4): 469–497.

Adamczyk, A., and I. Palmer. 2008. Religion and initiation into marijuana use: The deterring role of religious friends. *Journal of Drug Issues* 38(3): 717–742.

Azur, M.J., E.A. Stuart, C. Frangakis, and P.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): 40–49.

Bahr, S.J. 1998. Family, religiosity, and the risk of adolescent drug use. *Journal of Marriage and the Family* 60: 979–992.

Bahr, S.J., R. Hawks, and G. Wang. 1993. Family and religious influences on adolescent substance abuse. *Youth and Society* 24: 443–465.

Beyerlein, K. 2004. Specifying the impact of conservative Protestantism on educational attainment. *Journal for the Scientific Study of Religion* 43(4): 505–518.

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

Blackburn, J. 2008. Got wine? *Catholic Answers.* Retrieved from https://www.catholic.com/magazine/print-edition/got-wine.

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

Bock, W.E., J.K. Cochran, and L. Beeghley. 1987. Moral messages: The relative influence of denomination on the religiosity alcohol relationship. *The Sociological Quarterly* 28: 89–103.

Brown, T.L., G.S. Parks, R.S. Zimmerman, and C.M. Phillips. 2001. The role of religion in predicting adolescent alcohol use and problem drinking. *Journal of Studies on Alcohol* 62: 696–705.

Chu, D.C. 2007. Religiosity and desistance from drug use. *Criminal Justice and Behavior* 34: 661–679.

Cochran, J.K. 1993. The variable effects of religiosity and denomination on adolescent self-reported alcohol use by beverage type. *Journal of Drug Issues* 23: 479–491.

Desmond, S.A., G. Kikuchi, and K.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.

Ford, J., and C. Kadushin. 2002. Between sacral belief and moral community: A multidimensional approach to the relationship between religion and alcohol among whites and blacks. *Sociological Forum* 17: 255–279.

Glass, J., and P. Levchak. 2014. Red states, blue states, and divorce: Understanding the impact of conservative Protestantism on regional variation in divorce rates. *American Journal of Sociology* 119(4): 1002–1046.

Grammich, C., K. Hadaway, R. Houseal, D.E. Jones, A. Krindatch, R. Stanley, and R.H. Taylor. 2012. *2010 U.S. Religion census: Religious congregations & membership study. Association of Statisticians of American Religious Bodies.* Retrieved from http://www.thearda.com/Archive/Files/Descriptions/RCMSCY10.asp.

Greeley, A.M., W.C. McCready, and G. Theisen. 1980. *Ethnic drinking subcultures*. Westport: Praeger.

Greene, R. (2010). Most U.S. evangelical leaders don't drink, survey finds. CNN. Retrieved from http://religion.blogs.cnn.com/2010/06/24/most-u-s-evangelical-leaders-dont-drink-survey-finds/.

Hingson, R.W., T. Heeren, M. Winter, and H. Wechsler. 2005. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24: Changes from 1998 to 2001. *Annual Review of Public Health* 26: 259–279.

Hingson, R.W., W. Zha, and E.R. Weitzman. 2009. Magnitude of and trends in alcohol-related mortality and morbidity among US college students ages 18–24, 1998–2005. *Journal of Studies on Alcohol and Drugs* 16: 12–20.

Hoffmann, J.P. 2014. Religiousness, social networks, moral schemas, and marijuana use: A dynamic dual-process model of culture and behavior. *Social Forces* 93(1): 181–208.

Holt, J.B., J.W. Miller, T.S. Naimi, and D.Z. Sui. 2006. Religious affiliation and alcohol consumption in the United States. *The Geographical Review* 96(4): 523–542.

Hout, M., A. Greeley, and M.J. Wilde. 2001. The demographic imperative in religious change in the United States. *The American Journal of Sociology* 107(2): 468–500.

Jang, S.J., and B.R. Johnson. 2001. Neighborhood disorder, individual religiosity, and adolescent use of illicit drugs: A test of multilevel hypotheses. *Criminology* 39: 109–144.

Jang, S.J., C.D. Bader, and B.R. Johnson. 2008. The cumulative advantage of religiosity in preventing drug use. *Journal of Drug Issues* 38(3): 771–798.

Lehrer, E. 2004. Religion as a determinant of economic and demographic behavior in the United States. *Population and Development Review* 30(4): 707–726.

Leventhal, T., V. Dupéré, and J. Brooks-Gunn. 2009. Neighborhood influences on adolescent development. In *Handbook of adolescent psychology*, 3rd ed, ed. R. Lerner and L. Steinberg, 411–443. Hoboken, NJ: Wiley.

Mizruchi, E.H., and R. Perruci. 1962. Norm qualities and differential effects of deviant drinking behavior. *American Sociological Review* 27: 391–399.

Putnam, R.D. 2006. *E pluribus unim: Diversity and community in the twenty-first century*. Denmark: Nordic Political Science Association.

Regnerus, M. 2003. Moral communities and adolescent delinquency: Religious contexts and community social control. *The Sociological Quarterly* 44(4): 523–554.

Robertson, H.M. 1933. *Aspects of the rise of economic individualism: A criticism of Max Weber and his school*. Cambridge: Cambridge University Press.

Rubin, D.B. 1996. Multiple imputation after 18 + years. *Journal of the American Statistical Association* 91(434): 473–489.

Smith, C. (2008). *The national study of youth and religion wave 3*. Retrieved from http://www.thearda.com/Archive/NSYR.asp.

Smith, C., and L. Pearce. 2003. *The national study of youth and religion wave 1*. Retrieved from http://www.thearda.com/Archive/NSYR.asp.

Smith, C., and L. Pearce. 2005. *The national study of youth and religion wave 2*. Retrieved from http://www.thearda.com/Archive/NSYR.asp.

Stark, R. 1996. Religion as context: Hellfire and delinquency one more time. *Sociology of Religion* 57(2): 163–173.

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

Steensland, B., L.D. Robinson, W.B. Wilcox, J.Z. Park, M.D. Regnerus, and R.D. Woodberry. 2000. The measure of American religion: Toward improving the state of the art. *Social Forces* 79(1): 291–318.

Stroope, S., A.B. Franzen, and J.E. Uecker. 2015. Social context and college completion in the United States: The role of congregational biblical literalism. *Sociological Perspectives* 58(1): 120–137.

Turner, J.C., E.V. Leno, and A. Keller. 2013. Causes of mortality among American college students: A pilot study. *Journal of College Student Psychotherapy* 27(1): 31–42.

Ulmer, J.T., and C.T. Harris. 2013. Race and the religious contexts of violence: Linking religion and White, Black, and Latino violent crime. *The Sociological Quarterly* 54: 610–646.

Weber, M. 1930. *The Protestant ethic and the spirit of capitalism*. New York: Scribner.

Yang, T., R. Barnett, I.R.H. Rockett, X.Y. Yang, D. Wu, W. Zheng, and L. Li. 2015. The impact of regional economic reliance on the tobacco industry on current smoking in China. *Health & Place* 33: 159–171.