

## Article

# “Every Sinner Has a Future”: Religiosity, Future Orientation, Self-Control, and Marijuana Use

Scott A. Desmond

Division of Liberal Arts, Indiana University—Purdue University Columbus, Columbus, IN 47203, USA;  
sadesmon@iupuc.edu

**Abstract:** Based on previous research, I hypothesize that religious adolescents living in the United States are more likely to have a future orientation (i.e., they are more likely to think about the future), which in turn contributes to their greater self-control. I also hypothesize that a future orientation and self-control mediate the effect of religious service attendance and importance of religion on adolescent marijuana use. Based on the second wave of the National Study of Youth and Religion (NSYR), I find partial support for these hypotheses. Adolescents who believe that religion is important are more likely to think about the future, and adolescents who attend religious services frequently are less likely to use marijuana. Contrary to expectations, however, adolescents who think more about the future have *lower* self-control and thinking about the future and self-control do not explain the relationship between religious service attendance and marijuana use. The results also suggest that adolescents who identify as spiritual but not religious have lower self-control, and use marijuana more frequently compared to adolescents who do not identify as spiritual but not religious.

**Keywords:** adolescence; religious service attendance; importance of religion; future orientation; self-control; marijuana use



**Citation:** Desmond, Scott A. 2022.

“Every Sinner Has a Future”:  
Religiosity, Future Orientation,  
Self-Control, and Marijuana Use.  
*Religions* 13: 168. <https://doi.org/10.3390/rel13020168>

Academic Editors: Byron R. Johnson,  
Sung Joon Jang and Michael Hallett

Received: 30 December 2021

Accepted: 11 February 2022

Published: 14 February 2022

**Publisher’s Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

An abundance of research suggests that religiosity reduces the likelihood of juvenile delinquency (for reviews, see Adamczyk et al. 2017; Kelly et al. 2015; Yeung et al. 2009). Although research often finds a direct effect between religiosity and delinquency, many studies find the relationship between religiosity and delinquency is mediated by other variables, including delinquent friends (Desmond et al. 2011; Hoffmann 2014; Johnson et al. 2001; Ulmer et al. 2012), moral beliefs (Desmond et al. 2009; Johnson et al. 2001), social bonds (Ulmer et al. 2012), and perceived risk (Varma et al. 2017). One intervening variable that has been addressed in several studies is self-control. Research suggests that religiosity contributes to greater self-control (McCullough and Willoughby 2009; Rounding et al. 2012), and self-control partially explains the effect of religiosity on delinquency (Desmond et al. 2013; DeWall et al. 2014; Pirutinsky 2014; Ulmer et al. 2012).

Although research suggests several mechanisms that may help to explain the relationship between religiosity and delinquency, one concept that has not been fully investigated is time orientation, in particular an orientation toward the future. There are only a few studies that examine the relationship between religiosity and time orientation (Cecelia et al. 2017; Lowicki et al. 2018; Oner-Ozkan 2007), and even fewer have investigated the relationships between religiosity, time orientation, and delinquency (Holmes and Kim-Spoon 2017). Particularly important for the current research, a few studies suggest that individuals with a future time orientation tend to have greater self-control (Cheng et al. 2012; Dreves and Blackhart 2019).

Utilizing data from the second wave of the National Study of Youth and Religion (NSYR), I attempt to replicate and extend previous research by bringing together divergent strands of research on religiosity, self-control, and future orientation to provide a more

complete explanation of adolescent marijuana use. Do religious adolescents think more about the future than non-religious adolescents? Do religious adolescents have greater self-control than non-religious adolescents? If so, is the greater self-control of religious adolescents explained, in part, by their orientation to the future? Finally, are religious adolescents less likely to use marijuana and, if so, is the relationship between religiosity and marijuana use explained by their orientation to the future and/or self-control? The findings have important implications for understanding the connections between religiosity, self-control, future orientation, and adolescent marijuana use.

## 2. Literature Review

### 2.1. Religion and Self-Control

Although self-control and similar concepts, such as impulsivity, self-regulation, and sensation seeking, have been studied from a wide variety of disciplinary perspectives, [Gottfredson and Hirschi \(1990\)](#) provide the most well-known explanation of self-control in criminology. [Gottfredson and Hirschi \(1990\)](#) argue that crime, delinquency, substance use and “analogous behaviors” are primarily the result of low self-control. People with high self-control are better able to resist opportunities to engage in behaviors they believe will provide them with immediate rewards, whereas people with low self-control are less able to resist the temptation provided by such opportunities. [Gottfredson and Hirschi \(1990, p. 89\)](#) argue that delinquency is attractive to adolescents with low self-control because it is simple, requires very little effort, and brings immediate gratification (“money without work, sex without courtship, revenge without court delays”). [Gottfredson and Hirschi \(1990\)](#) argue that self-control is determined primarily by parenting, a person’s level of self-control is established at a young age, and self-control remains relatively stable throughout the life course.

Previous research suggests that religiosity is related to greater self-control ([Laurin et al. 2012](#); [McCullough and Willoughby 2009](#); [Rounding et al. 2012](#); [Watterson and Giesler 2012](#)). [McCullough and Willoughby \(2009\)](#) outline several ways that religion can contribute to greater self-control. Religion influences the selection and prioritization of goals by providing a set of principles by which people are expected to live their lives, and these principles often require individuals to control “inappropriate” thoughts and impulses that are inconsistent with those principles. Religion encourages self-monitoring of thoughts and behaviors to make sure that individuals abide by the principles of their religion. Many religious adherents believe that God observes and judges their behavior, providing rewards and punishments, both here-and-now and in the afterlife, which provides further incentive to self-monitor and control behavior that is inconsistent with expectations of virtue. Many religious rituals, such as prayer and/or meditation, require the exercise of self-control, so continued participation in these religious rituals may contribute to the development of greater self-control over time.

Several studies have concluded that self-control partially explains the effect of religiosity on delinquency ([Desmond et al. 2013](#); [DeWall et al. 2014](#); [Pirutinsky 2014](#); [Purwono et al. 2019](#); [Shepperd et al. 2015](#); [Ulmer et al. 2012](#); [Walker et al. 2007](#)). Using the National Longitudinal Study of Adolescent Health, [Desmond et al. \(2013\)](#) found that self-control partially mediated the effect of religiosity, measured as religious service attendance, importance of religion, and frequency of prayer, on marijuana use and drinking alcohol. In another study, also using the National Longitudinal Study of Adolescent Health, [Ulmer et al. \(2012\)](#) found that religious adolescents were less likely to initiate marijuana use, in part, because of their greater self-control. Based on the longitudinal Pathways to Desistance Study, [Pirutinsky \(2014\)](#) showed that increased religiosity was related to a decrease in criminal behavior that was partially explained by increased self-control. In a series of experimental studies with undergraduate students, [DeWall et al. \(2014\)](#) demonstrated that self-control helps to explain how religiosity influences substance use.

Although previous research shows that religiosity is related to self-control, there is still much that we can learn about how religiosity contributes to self-control. Research suggests

that religion influences how people think about time and, more specifically, that religious individuals are more likely to have a future orientation. Research also suggests that people with a future orientation tend to exhibit greater self-control. Drawing on these separate strands of research, I argue that religious individuals are more likely to think about the future and, in turn, this future orientation contributes to greater self-control.

## 2.2. Religion and Future Orientation

Time orientation (or temporal orientation) refers to “how one thinks about and attends to the past, the present, or the future” (Cecelia et al. 2017, p. 156). Scholars suggest there are multiple time orientations, including past-negative, past-positive, present-fatalistic, present-hedonistic, and future (Cecelia et al. 2017). In this study, I focus on future time orientation, which is the “tendency to spontaneously think about and to attach importance to [the] future” (Agarwal et al. 1983, p. 368). In contrast to other time orientations, future orientation has been linked to many positive outcomes (Baird et al. 2021; Kooij et al. 2018). Particularly relevant for this study, adolescents with a future orientation are less likely to engage in delinquent behaviors (Chen and Vazsonyi 2011; Clinkinbeard 2014; Gouveia-Pereira et al. 2017; Petrich and Sullivan 2020; So et al. 2018).

Religion may contribute to thinking about the future for several reasons. Religion encourages delayed gratification (Carter et al. 2012), so religious individuals are more likely to focus on rewards they will receive in the future, including those they might gain in the afterlife. Religion often emphasizes the need for patience and faith, which might suggest waiting for something that will arrive in the future (Carter et al. 2012). As Carter et al. (2012, p. 225) argues, religion encourages “preoccupation with future-oriented concepts such as immortality, reincarnation, resurrection, the slow but inexorable creep of divine justice, karma, or places one might inhabit after death.” Previous research also suggests that people in predictable environments tend to focus more on the future compared to people in unpredictable environments who tend to focus more on the present (Chen and Qu 2017; Chen et al. 2017). Therefore, if religious rituals (religious service attendance) and beliefs (believing that God answers prayers) make life feel more predictable, then religious individuals would be more likely to have a future time orientation.

Some research has examined the relationship between religiosity and time orientation (Carter et al. 2012; Cecelia et al. 2017; Holmes and Kim-Spoon 2016; Lowicki et al. 2018; Oner-Ozkan 2007; Tonn and Conrad 2007). Although a few studies suggest that less religious people are more oriented toward the future (Cecelia et al. 2017), most of the research suggests that religious people are more future oriented. For example, based on a sample of individuals from twenty-four countries, Tonn and Conrad (2007) found that secular individuals imagine the future less clearly compared to people who identify with a religion. Christians tend to think more about the future and worry less about the future (Tonn and Conrad 2007). Oner-Ozkan (2007) found that undergraduate students attending a Middle Eastern university who had high levels of intrinsic religiosity and belief in God also had high levels of future orientation.

Several studies have examined the relationship between future orientation and delinquency and substance use (Henson et al. 2006; Keough et al. 1999; So et al. 2018; Stoddard et al. 2011). Stoddard and Pierce (2018) found that high school students who associated with positive peers (e.g., involved in the community, got good grades) were less likely to use alcohol and marijuana, and the effect of positive peers was partially explained by positive future orientation. Associating with positive peers, who likely also have an orientation toward the future, may help adolescents to focus more on their future goals and less on the instant gratification that could be obtained in the present moment, which would discourage them from using alcohol and marijuana. Henson et al. (2006) found that undergraduate students from an introductory psychology course with a future time perspective were less likely to drink, smoke, and use marijuana. Using fifteen combined samples, mostly of undergraduate and high school students, Keough et al. (1999) found that individuals who

are high on future time perspective are less likely to engage in substance use, whereas individuals high in present time perspective reported greater substance use.

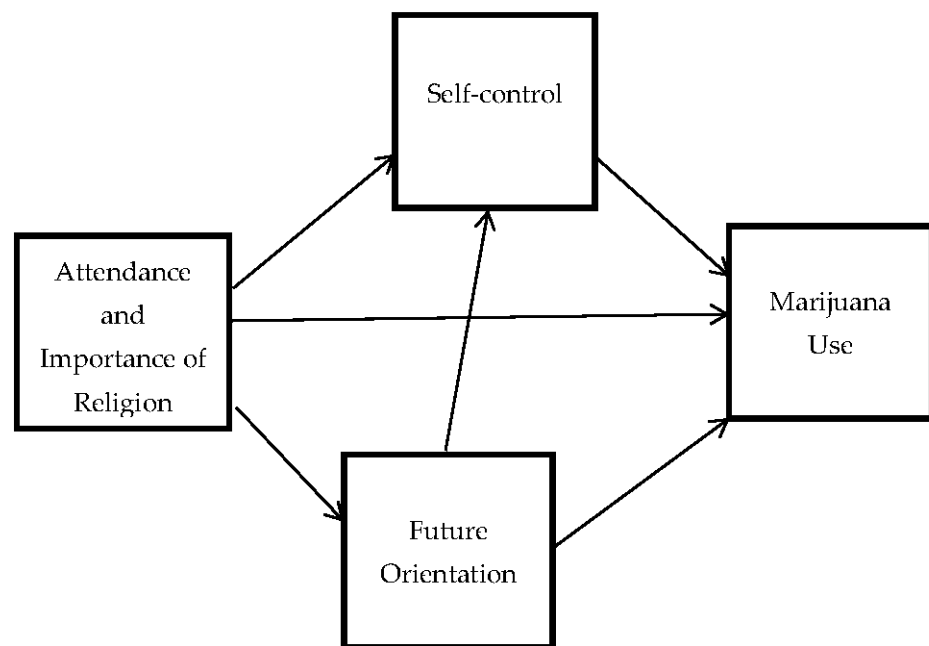
I know of only one study that has examined the relationships between religiosity, future orientation, and delinquency. Using a sample of adolescents, [Holmes and Kim-Spoon \(2017\)](#) found that religiosity was related to belief in an afterlife, and belief in an afterlife partially mediated the effect of religiosity on future orientation. Additionally, religious adolescents were less likely to smoke cigarettes and use marijuana, and part of the effect of religiosity on substance use was mediated by future orientation. There is clearly a need for more research on religiosity, future orientation, and delinquency.

### 2.3. Self-Control and Future Orientation

Research suggests that future orientation and self-control are related but distinct concepts ([Cheng et al. 2012](#); [Clinkinbeard 2014](#); [Dreves and Blackhart 2019](#)). Several studies have examined the relationship between future orientation and self-control, as well as their relationships with delinquency. Based on two experiments conducted in Taiwan, [Cheng et al. \(2012\)](#) found that respondents with a future orientation were more likely to delay gratification. [Dreves and Blackhart \(2019\)](#) theorized that future time perspective should make distant rewards more appealing than immediate rewards, thereby contributing to greater self-control. Experimental research with undergraduate students also suggests that manipulating time perspective is associated with changes in self-control ([Dreves and Blackhart 2019](#)). [Gouveia-Pereira et al. \(2017\)](#) found that, among Portuguese students, the effect of future orientation on juvenile delinquency was mediated by impulsivity. Previous research also suggests that future orientation can condition the effect of self-control on delinquency, such that low self-control has less of an effect on delinquency when individuals are more oriented toward the future, and a stronger effect on delinquency when individuals are less oriented toward the future ([Chen and Vazsonyi 2011](#); [Clinkinbeard 2014](#)).

### 2.4. Current Study

Given the lack of research that addresses the relationships between religiosity, future orientation, self-control, and delinquency, I examined the effect of religious service attendance and importance of religion on future orientation, self-control, and marijuana use. Because there is a substantial body of research that focuses on the relationship between religiosity and substance use (e.g., [Freeman 2019](#); [Guo and Metcalfe 2019](#); [Hill and Pollock 2015](#); [Hoffmann 2014](#); [Jang 2019](#); [Jang et al. 2008](#); [Longest and Vaisey 2008](#); [Nie and Yang 2018](#); [Rivera et al. 2018](#); [Thomson 2016](#); [Varma et al. 2017](#)), and because previous research suggests that religiosity is more strongly related to substance use than serious delinquency ([Burkett and White 1974](#); [Miller and Vuolo 2018](#)), I chose to focus on adolescent marijuana use. Based on previous research, I expect that adolescents who attend religious services frequently, and those who believe that religion is important, will be less likely to use marijuana. In addition to examining the direct effects of adolescent religiosity on marijuana use, using a series of OLS regression models, I also examined the indirect effects of adolescent religiosity on marijuana use through future orientation and self-control. For the analysis, I used the second wave of the National Study of Youth and Religion. Figure 1 provides a visual depiction of the hypothesized relationships between religiosity, future orientation, self-control, and marijuana use.



**Figure 1.** Religiosity, future orientation, self-control, and marijuana use.

In addition to examining the relationships between religiosity, future orientation, self-control, and marijuana use, I also considered adolescents who identify as spiritual but not religious (Hodge et al. 2007; Jang and Franzen 2013; Seto 2021). Previous research suggests that adolescents who identify as spiritual but not religious are more likely to use marijuana compared to adolescents who do not identify as spiritual but not religious (Seto 2021), primarily because they are less likely to attend religious services, they believe their parents would not be as upset if they found out they were using drugs, and they are more likely to believe that morals are relative (Seto 2021). In this study I explore two additional mechanisms, a future orientation and self-control, that might help to explain why adolescents who identify as spiritual but not religious are more likely to use marijuana.

### 3. Methods

#### 3.1. Data

The National Study of Youth and Religion (NSYR) is a nationally representative survey of adolescents living in the United States. The NSYR began in 2002 with telephone surveys of randomly selected English and Spanish speaking adolescents between 13 and 17 years of age. In total, 3370 parent-child respondents participated in the study (81% response rate). In 2005, English speaking adolescents who participated in wave 1 were contacted during a second wave of data collection. Of the eligible wave 1 participants, 2581 respondents completed wave 2 of the study (78% response rate). Because some of the questions that were used for the analysis were not included in wave 1 of the NSYR (e.g., risk taking), I used wave 2 of the NSYR (age 16–20).

#### 3.2. Dependent Variable

For the dependent variable, I used a question about marijuana use. Respondents were asked “How often, if ever, do you use marijuana?” Responses to this question ranged from 0 = never to 6 = once a day or more. When the data were collected in 2005, marijuana use was illegal in every state. I decided to focus on marijuana use because previous research suggests that religiosity is more likely to be related to substance use than other types of delinquency (Burkett and White 1974; Miller and Vuolo 2018), because secular and religious groups both condemn violence and theft, but religious groups are more likely than secular groups to disapprove of marijuana use. In addition, compared to more serious types of



delinquency, marijuana use is more common among adolescents (25.5% of the respondents reported using marijuana).

### 3.3. Religiosity

Researchers commonly make a distinction between public religiosity and private religiosity. I used a measure of religious service attendance to measure public religiosity. Adolescents were asked, “About how often do you attend religious services?” The responses ranged from 0 = never to 6 = more than once a week. To measure private religiosity, I used a question about the importance of religion in daily life. Adolescents were asked “How important or unimportant is religious faith in shaping how you live your daily life?” Responses ranged from 0 = not important at all to 4 = extremely important. In addition to public and private religiosity, I also included a measure of spiritual but not religious. Adolescents were asked, “Some people say that they are ‘spiritual but not religious’. How true or not would you say that is of you?” Responses were coded as 2 = very true, 1 = somewhat true, and 0 = not true at all (contrast category). As a control variable, I also included a series of items to measure religious affiliation: Evangelical Protestant, mainline Protestant, Black Protestant, Catholic, Jewish, Latter-day Saints (LDS), other religion, indeterminate religion, and no religion (contrast category).

### 3.4. Future Orientation

Although previous research suggests there are multiple time orientations, such as past negative, past positive, present-fatalistic, present-hedonistic, and future, because of the questions contained in the NSYR, the analysis was limited to future orientation. Future orientation was measured with the question “How often, if at all, do you think about or plan for the future?” Responses ranged from 0 = never to 4 = very often. Therefore, higher scores indicate a greater orientation toward the future.

### 3.5. Self-Control

I measured self-control with an item related to risk-taking. Adolescents were asked to agree or disagree (strongly agree = 0, strongly disagree = 4) with the statement “you like to take risks.” Therefore, given how I coded the question, higher scores indicate greater self-control (i.e., less willingness to take risks).

### 3.6. Control Variables

I included sex, race, age, education, attachment to parents, and associating with substance using peers in the analysis as control variables. Sex was measured as a dichotomous variable (1 = female, 0 = male). Race was measured using a series of dummy variables: White, African American, and Hispanic (other race was used as the contrast category). Age was an interval-level variable ranging from 16–21. Education was measured as a dichotomous variable (1 = high school diploma, 0 = no diploma). I included a measure of attachment to mother and attachment to father, both of which combined four items: “How close or not do you feel to [mother/father]?”, “In general, how well do you and [mother/father] get along?”, “How often do you talk with [mother/father] about personal subjects?”, and “How much does [mother/father] understand you?” Associating with substance using peers was measured using an item that asked respondents how many of their five closest friends “do drugs or use a lot of alcohol?”.

### 3.7. Analytic Strategy

I argue that religiosity may influence marijuana use indirectly through future time orientation and self-control. In other words, I hypothesize that future time orientation and self-control act as intervening variables that mediate the relationship between religiosity and marijuana use. [Baron and Kenny \(1986\)](#) argue that three conditions must be met to establish an indirect relationship. First, the independent variables (religious service attendance and importance of religion) must have a significant effect on the mediating

variables (future time orientation and self-control). Second, the independent variables (religious service attendance and importance of religion) must have a significant effect on the dependent variable (marijuana use) when the mediating variables (future time orientation and self-control) are not included in the model. Third, the mediating variables (future time orientation and self-control) must have a significant effect on the dependent variable (marijuana use).

To establish the first condition, I determined if there is a relationship between religiosity and future time orientation, which I hypothesized could mediate the effect of religiosity on marijuana use. I then examined the effect of religious service attendance, importance of religion, and future orientation on self-control. I then examined the effect of religious service attendance and importance of religion on marijuana use, first without future time orientation and self-control in the models (second condition) and then including future time orientation and self-control (the third condition).

## 4. Results

### 4.1. Future Orientation

Do religious adolescents think more about the future than non-religious adolescents? The results for the analysis of religiosity and thinking about the future are depicted in Table 1. Women think about the future more often than men, as adolescents get older they think more often about the future, and adolescents who are closer to their mothers and fathers also think more about the future. With respect to religious affiliation, adolescents who identify as evangelical protestants are more likely to think about the future than adolescents with no religious affiliation. The more important adolescents believe religion is in shaping their daily lives the more likely they are to think about the future, but attendance at religious services is not significantly related to thinking about the future. Finally, adolescents who identify as spiritual but not religious are no more likely to think about the future than adolescents who do not identify as spiritual but not religious.

**Table 1.** OLS Regression of Religiosity and Future Orientation (Standard Errors).

Sex (female = 1)	0.209 (0.044) **
Age	0.049 (0.025) *
White	−0.027 (0.096)
Black	0.123 (0.127)
Hispanic	−0.035 (0.120)
Diploma	0.097 (0.066)
Close to Mother	0.113 (0.024) **
Close to Father	0.057 (0.023) *
Substance Using Peers	0.014 (0.013)
Evangelical Protestant	0.178 (0.090) *
Mainline Protestant	0.091 (0.101)
Black Protestant	0.229 (0.145)
Catholic	0.083 (0.082)
Jewish	0.120 (0.119)
LDS	0.128 (0.167)
Other Religion	0.285 (0.172)
Indeterminate	0.041 (0.088)
Religious Attendance	−0.014 (0.014)
Importance of Religion	0.102 (0.025) **
Very Spiritual	0.012 (0.073)
Somewhat Spiritual	−0.025 (0.047)
<i>R-Square</i>	0.102
<i>N</i>	1807

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

#### 4.2. Self-Control

Do religious adolescents have greater self-control than non-religious adolescents? If so, is the greater self-control of religious adolescents explained, in part, by their orientation to the future? Table 2 displays the results for the analysis of religiosity, future orientation, and self-control. The first column (model 1) shows the results for the analysis of religiosity and self-control. Women have significantly higher levels of self-control than men, and older adolescents have significantly more self-control than younger adolescents. When adolescents have more substance using friends, they report significantly lower levels of self-control. Religious affiliation is not significantly related to self-control. Contrary to previous research, the results suggest that religious service attendance and importance of religion are not significantly related to self-control.<sup>1</sup> Adolescents who report being spiritual but not religious, both very and somewhat, have lower levels of self-control than adolescents who do not identify as spiritual but not religious.

**Table 2.** OLS Regression of Religiosity, Future Orientation, and Self-control (Standard Errors).

	Model 1	Model 2
Sex (female = 1)	0.142 (0.032) **	0.152 (0.032) **
Age	0.049 (0.018) **	0.051 (0.018) **
White	−0.055 (0.069)	−0.057 (0.069)
Black	−0.013 (0.092)	−0.008 (0.092)
Hispanic	−0.139 (0.087)	−0.140 (0.087)
Diploma	−0.049 (0.047)	−0.045 (0.047)
Close to Mother	−0.022 (0.018)	−0.017 (0.018)
Close to Father	0.031 (0.017)	0.033 (0.017) *
Substance Using Peers	−0.055 (0.009) **	−0.055 (0.009) **
Evangelical Protestant	0.045 (0.065)	0.053 (0.065)
Mainline Protestant	0.075 (0.073)	0.079 (0.073)
Black Protestant	−0.052 (0.105)	−0.042 (0.105)
Catholic	0.055 (0.060)	0.059 (0.059)
Jewish	0.052 (0.086)	0.057 (0.086)
LDS	0.060 (0.120)	0.066 (0.120)
Other Religion	0.289 (0.124)	0.302 (0.124) *
Indeterminate	0.026 (0.064)	0.028 (0.064)
Religious Attendance	−0.002 (0.010)	−0.003 (0.010)
Importance of Religion	0.026 (0.018)	0.030 (0.018)
Very Spiritual	−0.186 (0.053) **	−0.186 (0.053) **
Somewhat Spiritual	−0.076 (0.034) *	−0.077 (0.034) *
Future Orientation		−0.044 (0.017) **
<i>R-Square</i>	0.064	0.064
<i>N</i>	1801	1801

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

The second column (model 2) of Table 2 depicts the results for the analysis of religiosity, future orientation, and self-control. As reported earlier (Table 1), adolescents who believe that religion is important in their lives are significantly more likely to think about the future compared to adolescents who do not think that religion is important. Contrary to expectations, however, since religious service attendance and importance of religion are not significantly related to self-control, thinking about the future does not mediate the effect of religiosity on self-control. Contrary to expectations, thinking about the future is *negatively* related to self-control (Table 2, model 2). The more adolescents think about the future, the lower their levels of self-control. Thinking about the future does not explain the relationship between spiritual but not religious and self-control either because (1) being spiritual but not religious is not significantly related to thinking about the future (Table 1) and (2) thinking about the future does not reduce the effect of spiritual but not religious on self-control when it is included in the model (Table 2, compare model 1 to model 2).



### 4.3. Marijuana Use

Are religious adolescents less likely to use marijuana? The results for the analysis of religiosity, future orientation, self-control, and marijuana use are depicted in Table 3. Beginning with model 1, women are significantly less likely to use marijuana than men. Adolescents who are close to their fathers are also significantly less likely to use marijuana. On the other hand, the more adolescents associate with substance-using peers the more likely they are to use marijuana. With respect to religion, the more frequently adolescents attend religious services the less likely they are to use marijuana. In contrast, adolescents who identify as being very spiritual but not religious are more likely to use marijuana compared to adolescents who do not identify as spiritual but not religious.

**Table 3.** OLS Regression of Religiosity, Future Orientation, Self-control, and Marijuana Use (Standard Errors).

	Model 1	Model 2	Model 3	Model 4
Sex (female = 1)	−0.202 (0.065) **	−0.186 (0.065) **	−0.181 (0.065) **	−0.163 (0.066) *
Age	−0.022 (0.037)	−0.018 (0.037)	−0.015 (0.037)	−0.011 (0.037)
White	0.149 (0.142)	0.147 (0.142)	0.141 (0.142)	0.139 (0.142)
Black	0.198 (0.189)	0.208 (0.188)	0.214 (0.189)	0.224 (0.189)
Hispanic	0.086 (0.178)	0.082 (0.178)	0.063 (0.178)	0.058 (0.178)
Diploma	0.017 (0.098)	0.024 (0.098)	0.013 (0.098)	0.021 (0.098)
Close to Mother	0.004 (0.036)	0.014 (0.036)	0.003 (0.036)	0.013 (0.036)
Close to Father	−0.114 (0.035) **	−0.110 (0.035) **	−0.111 (0.035) **	−0.106 (0.035) **
Delinquent Peers	0.390 (0.019) **	0.392 (0.019) **	0.383 (0.019) **	0.384 (0.019) **
Evangelical Protestant	−0.066 (0.134)	−0.051 (0.134)	−0.068 (0.134)	−0.051 (0.134)
Mainline Protestant	−0.169 (0.151)	−0.162 (0.150)	−0.166 (0.151)	−0.157 (0.150)
Black Protestant	0.137 (0.215)	0.156 (0.215)	0.106 (0.215)	0.128 (0.215)
Catholic	−0.131 (0.122)	−0.123 (0.122)	−0.127 (0.122)	−0.119 (0.122)
Jewish	−0.166 (0.176)	−0.156 (0.176)	−0.164 (0.176)	−0.152 (0.176)
LDS	−0.145 (0.247)	−0.134 (0.247)	−0.142 (0.247)	−0.129 (0.247)
Other Religion	−0.141 (0.256)	−0.118 (0.256)	−0.107 (0.256)	−0.079 (0.256)
Indeterminate	−0.107 (0.131)	−0.102 (0.131)	−0.104 (0.131)	−0.099 (0.131)
Religious Attendance	−0.087 (0.021) **	−0.088 (0.021) **	−0.085 (0.021) **	−0.086 (0.021) **
Importance of Religion	0.045 (0.038)	0.053 (0.038)	0.047 (0.038)	0.056 (0.038)
Very Spiritual	0.377 (0.109) **	0.377 (0.109) **	0.356 (0.110) **	0.355 (0.109) **
Somewhat Spiritual	0.038 (0.070)	0.036 (0.070)	0.031 (0.070)	0.028 (0.070)
Future Orientation		−0.080 (0.035) **		−0.085 (0.035) *
Self-control			−0.148 (0.049) **	−0.155 (0.049) **
<i>R-Square</i>	0.270	0.272	0.274	0.277
<i>N</i>	1803	1802	1796	1796

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

Is the relationship between religious service attendance and marijuana use explained by an orientation toward the future? Although the results suggest that adolescents who think more about the future are significantly less likely to use marijuana, including thinking about the future in the model (model 2) does not reduce the effect of religious service attendance on marijuana use (the effect of religious service attendance on marijuana use increases from −0.087 to −0.088 when thinking about the future is added to the model). The relationship between spiritual but not religious and marijuana use also remains unchanged when thinking about the future is added to the model.

Is the relationship between religious service attendance and marijuana use explained by self-control? The results (model 3) suggest that adolescents with high self-control are significantly less likely to use marijuana. When self-control is added to the model, the effect of religious service attendance on marijuana use is decreased only slightly (by 3.4% from −0.088 to −0.085). Adding self-control to the model also decreases the effect of being spiritual but not religious on marijuana use (by 5.6% from 0.377 to 0.356). Therefore, the results suggest that religious service attendance decreases marijuana use, in part, because

it increases self-control, but there are more important intervening variables, particularly associating with substance-using peers. The results also suggest that adolescents who identify as being very spiritual but not religious, compared to adolescents who do not identify as being spiritual but not religious, are more likely to use marijuana, in part, because they have lower self-control.

When thinking about the future and self-control are included in the model together (model 4), both variables are significantly related to using marijuana. Adolescents who think more about the future more often, and adolescents with greater self-control, are significantly less likely to use marijuana. When thinking about the future and self-control are both included in the model, religious service attendance and spiritual but not religious are still significantly related to marijuana use. When thinking about the future and self-control are both included in the model the relationships between religious service attendance and spiritual but not religious with marijuana use increase slightly, compared to when thinking about the future and self-control are included in the model separately (model 2 and model 3, respectively). In summary, although religious service attendance, being spiritual but not religious, thinking about the future, and self-control are all significantly related to marijuana use among adolescents, there isn't much evidence that any of the variables mediate the effect of any other variable. Thinking about the future and self-control do little to mediate the effect of religious service attendance on marijuana use, although self-control explains more of the effect of spiritual but not religious on marijuana use. Furthermore, contrary to previous research, self-control does not mediate the effect of thinking about the future on marijuana use, nor does thinking about the future mediate the effect of self-control on marijuana use.

## 5. Discussion

In many respects, the results of this study are consistent with previous research. First, the results suggest that religious adolescents are more likely to think about the future than non-religious adolescents (Cecelia et al. 2017). Specifically, evangelical protestant adolescents are more likely to think about the future than adolescents who do not report a religious affiliation. In addition, when adolescents believe that religion is important in shaping their daily lives, they are more likely to think about the future. With respect to marijuana use, also consistent with previous research, the results suggest that adolescents who attend religious services more frequently are less likely to use marijuana. Adolescents with a future orientation and high self-control are also less likely to use marijuana.

Although consistent with previous research in many respects, the results of this study contradict the results of previous research. For example, whereas previous research suggests that a future orientation increases self-control, the results of this study suggest that the more adolescents think about the future, the lower their levels of self-control. The negative relationship between future orientation and self-control for the entire sample could mask important differences for specific groups. For example, given that future orientation and self-control change with age (Steinberg et al. 2009), the relationship between the two concepts might also change with age. Analysis of the NSYR suggests that future orientation and self-control are positively correlated among those 16 years of age (0.032), negatively correlated among those ages 17–19 (−0.020, −0.015, −0.042), and not correlated at age 20 (0.000). Older adolescents tend to think more about the future, but perhaps older adolescents are also less cautious and more willing to take risks.

Very few studies have considered the relationship between identifying as spiritual but not religious and delinquency (Hodge et al. 2007; Jang and Franzen 2013; Seto 2021). Consistent with previous research (Seto 2021), the results suggest that adolescents who identify as spiritual but not religious are more likely to use marijuana than adolescents who do not identify as spiritual but not religious. Those who identify as spiritual but not religious, compared to those who do not identify as spiritual but not religious, are no more likely to think about the future, but they do tend to have lower self-control, perhaps because they are less likely to attend religious services or to think that religion is important. Adding

to existing research, the results suggest that adolescents who identify as spiritual but not religious are more likely to use marijuana, in part, because they have lower self-control. Future research should further seek to explain why adolescents who identify as spiritual but not religious are more likely to use marijuana.

In this study I focused on mediation: how future orientation could mediate the effect of religiosity on self-control and how future orientation and self-control could mediate the effect of religiosity on marijuana use. Previous research, however, also suggests that religiosity, future orientation, and self-control may condition (moderate) the effect of one another on adolescent outcomes. For example, [Kim-Spoon et al. \(2014, p. 739\)](#) found a significant interaction effect for religiosity and self-control, such that “poor self-control was significantly related to substance use for adolescents with low religiousness, whereas the link between poor self-control and substance use did not exist for adolescents with high religiousness” (see, also, [Purwono et al. 2019](#)). Several studies have also tested for interaction effects between future orientation and self-control ([Chen and Vazsonyi 2011](#); [Clinkinbeard 2014](#); [Petrich and Sullivan 2020](#)). For example, using the first wave of the National Longitudinal Study of Youth, [Clinkinbeard \(2014\)](#) determined the relationship between self-control and delinquency became weaker as adolescents became more oriented toward the future. Therefore, instead of mediation, the effects of religiosity, future orientation, and self-control on marijuana use may all be conditional. Future research should explore how the relationships between religiosity, future orientation, and self-control interact with one another to influence marijuana use.

In the future, research should also further investigate how peer networks mediate and moderate the relationships between religiosity, future orientation, and self-control on marijuana use. Previous research suggests that religious adolescents are less likely to have delinquent friends ([Desmond et al. 2011](#)). Friendship networks also contribute to the development of a future orientation and self-control ([Meldrum and Hay 2012](#); [Stoddard and Pierce 2018](#)). Based on a sample of high school students, [Stoddard and Pierce \(2018\)](#) found that associating with positive peers was significantly related to having a future orientation, but associating with negative peers was not. [Meldrum and Hay \(2012\)](#) found that associating with prosocial peers was related to higher self-control and associating with deviant peers was related to lower self-control. Self-control may also moderate the effect of delinquent peers on delinquency ([Meldrum et al. 2009](#)). Associating with prosocial peers tends to reduce involvement in delinquency ([Walters 2020](#)), while associating with delinquent peers tends to increase delinquency ([Thomson 2016](#)).

Although the results of this study help to clarify the relationships between religiosity, future orientation, self-control, and marijuana use, this study is not without limitations. One important limitation is, due to lack of appropriate items in the NSYR, I was forced to measure complex, multidimensional concepts (future orientation and self-control) with a single survey question. The measure of time orientation is related to thinking about the future. The survey does not have any items that ask respondents how much they think about the present or the past. In addition, there are no questions that ask how people feel about the future (optimistic, anxious). People also think and feel differently about the near future versus the long-term future ([Tonn and Conrad 2007](#)). Similarly, [Gottfredson and Hirschi’s \(1990\)](#) formulation of self-control contains several dimensions that I am unable to measure.

Despite these limitations, the results suggest that religiosity has positive benefits for adolescents. Adolescents who believe that religion is important are more likely to think about the future, and adolescents who attend religious services frequently are less likely to use marijuana. Adolescents who think more about the future, and those with greater self-control, are also less likely to use marijuana. Future research should attempt to replicate this study using more comprehensive measures of time orientation and self-control. Future research should also attempt to replicate this study using respondents at different stages in the life course (e.g., emerging adults and adults).

**Funding:** This research received no external funding.

**Data Availability Statement:** The National Study of Youth and Religion is publicly available from the Association of Religion Data Archive (<https://www.thearda.com/> accessed date: 30 December 2021).

**Acknowledgments:** The National Study of Youth and Religion, <http://youthandreligion.nd.edu/>, whose data were used by permission here, was generously funded by Lilly Endowment Inc., under the direction of Christian Smith, of the Department of Sociology at the University of Notre Dame and Lisa Pearce, of the Department of Sociology at the University of North Carolina at Chapel Hill.

**Conflicts of Interest:** The author declares no conflict of interest.

## Notes

- <sup>1</sup> Supplemental analysis suggests that religious service attendance and importance of religion have significant effects on self-control when substance-using peers are not included in the model. Therefore, the effect of religious service attendance and importance of religion on self-control may be indirect through substance-using peers. Religious adolescents are less likely to have friends who use drugs and alcohol, friends who may have low self-control themselves, which helps them to maintain their own high levels of self-control, perhaps because they are not exposed to tempting situations that would require them to exhaust their self-control as much as adolescents with substance-using friends.

## References

- Adamczyk, Amy, Joshua D. Freilich, and Chunrye Kim. 2017. Religion and crime: A systematic review. *Sociology of Religion* 78: 192–232. [CrossRef]
- Agarwal, Adesh, Kaushal K. Tripathi, and Manju Srivastava. 1983. Social roots and psychological implications of time perspective. *International Journal of Psychology* 18: 367–80. [CrossRef]
- Baird, Harriet M., Thomas L. Webb, Fuschia M. Sirois, and Jilly Gibson-Miller. 2021. Understanding the effects of time perspective: A meta-analysis testing a self-regulatory framework. *Psychological Bulletin* 147: 233–67. [CrossRef]
- Baron, Reuben M., and David A. Kenny. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51: 1173–82. [CrossRef] [PubMed]
- Burkett, Steven R., and Mervin White. 1974. Hellfire and Delinquency: Another Look. *Journal for the Scientific Study of Religion* 13: 455–62. [CrossRef]
- Carter, Evan C., Michael E. McCullough, Jungmeen Kim-Spoon, Carolina Corrales, and Adam Blake. 2012. Religious people discount the future less. *Evolution and Human Behavior* 33: 224–31. [CrossRef]
- Cecelia, Erica, Dawn Leach, and Jonathan Gore. 2017. The link between time orientation and religious orientation among American college students. *Mental Health, Religion, and Culture* 20: 154–61.
- Chen, Bin-Bin, and Wenxiang Qu. 2017. Life history strategies and procrastination: The role of environmental predictability. *Personality and Individual Differences* 117: 23–29. [CrossRef]
- Chen, Pan, and Alexander T. Vazsonyi. 2011. Future orientation, impulsivity, and problem behaviors: A longitudinal moderation model. *Developmental Psychology* 47: 1633–45. [CrossRef]
- Chen, Bin-Bin, Zeyi Shi, and Shijin Sun. 2017. Life history strategy as a mediator between childhood environmental unpredictability and adulthood personality. *Personality and Individual Differences* 111: 215–19. [CrossRef]
- Cheng, Ying-Yao, Paichi Pat Shein, and Wen-Bin Chiou. 2012. Escaping the impulse to immediate gratification: The prospect concept promotes a future-oriented mindset, prompting an inclination towards delayed gratification. *British Journal of Psychology* 103: 129–41. [CrossRef] [PubMed]
- Clinkinbeard, Samantha S. 2014. What lies ahead: An exploration of future orientation, self-control, and delinquency. *Criminal Justice Review* 39: 19–36. [CrossRef]
- Desmond, Scott A., Sarah E. Soper, David J. Purpura, and Elizabeth Smith. 2009. Religiosity, moral beliefs, and delinquency: Does the effect of religiosity on delinquency depend on moral beliefs? *Sociological Spectrum* 29: 51–71. [CrossRef]
- 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: 665–94. [CrossRef]
- Desmond, Scott A., Jeffery T. Ulmer, and Christopher D. Bader. 2013. Religion, self-control, and substance use. *Deviant Behavior* 34: 384–406. [CrossRef]
- DeWall, Nathan C., Richard S. Pond Jr., Evan C. Carter, Michael E. McCullough, Nathaniel M. Lambert, Frank D. Fincham, and John B. Nezlek. 2014. Explaining the relationship between religiousness and substance use: Self-control matters. *Journal of Personality and Social Psychology* 107: 339–51. [CrossRef]
- Dreves, Parker A., and Ginette C. Blackhart. 2019. Thinking into the future: How a future time perspective improves self-control. *Personality and Individual Differences* 149: 141–51. [CrossRef]
- Freeman, Jason A. 2019. Does the association between religiosity and substance use vary between adolescence and early adulthood? *Sociological Inquiry* 91: 3–29. [CrossRef]
- Gottfredson, Michael R., and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford: Stanford University Press.



- Gouveia-Pereira, Maria, Hugo M. S. Gomes, Filipa Roncon, and Rita Mendonca. 2017. Impulsivity mediates the relationship between future orientation and juvenile deviancy. *Deviant Behavior* 38: 34–46. [\[CrossRef\]](#)
- Guo, Siying, and Christi Metcalfe. 2019. Religion as a social control: A longitudinal study of religious involvement and substance use. *Crime and Delinquency* 65: 1149–81. [\[CrossRef\]](#)
- Henson, James M., Michael P. Carey, Kate B. Carey, and Stephen A. Maisto. 2006. Associations among health behaviors and time perspective in young adults: Model testing with bootstrapping replications. *Journal of Behavioral Medicine* 29: 127–37. [\[CrossRef\]](#)
- Hill, Milton C., and Wendi Pollock. 2015. Was Hirschi right?: A national-level longitudinal examination of religion as a social bond. *Deviant Behavior* 36: 783–806. [\[CrossRef\]](#)
- Hodge, David R., Kathleen Andereck, and Harry Montoya. 2007. The protective influence of spiritual—Religious lifestyle profiles on tobacco use, alcohol use, and gambling. *Social Work Research* 31: 211–19. [\[CrossRef\]](#)
- Hoffmann, John P. 2014. Religiousness, social networks, moral schemas, and marijuana use: A dynamic dual-process model of culture and behavior. *Social Forces* 93: 181–208. [\[CrossRef\]](#)
- Holmes, Christopher, and Jungmeen Kim-Spoon. 2016. Why are religiousness and spirituality associated with externalizing psychopathology? A literature review. *Clinical Child and Family Psychology Review* 19: 1–20. [\[CrossRef\]](#)
- Holmes, Christopher J., and Jungmeen Kim-Spoon. 2017. Adolescents religiousness and substance use are linked via afterlife beliefs and future orientation. *Journal of Early Adolescence* 37: 1054–77. [\[CrossRef\]](#) [\[PubMed\]](#)
- Jang, Sung Joon. 2019. Religiosity, crime, and drug use among Juvenile offenders: A latent growth modeling approach. *Journal of Quantitative Criminology* 35: 27–60. [\[CrossRef\]](#)
- Jang, Sung Joon, and Aaron B. Franzen. 2013. Is being “spiritual” enough without being religious? A study of violent and property crimes among emerging adults. *Criminology* 51: 595–627. [\[CrossRef\]](#)
- Jang, Sung Joon, Christopher D. Bader, and Byron Johnson. 2008. The cumulative advantage of religiosity in preventing drug use. *Journal of Drug Issues* 38: 771–98. [\[CrossRef\]](#)
- Johnson, Byron R., Sung Joon Jang, David B. Larson, and Spencer De Li. 2001. Does adolescent religious commitment matter? A reexamination of the effects of religiosity on delinquency. *Journal of Research in Crime and Delinquency* 38: 22–44. [\[CrossRef\]](#)
- Kelly, P. Elizabeth, Joshua R. Polanin, Sung Joon Jang, and Byron R. Johnson. 2015. Religion, delinquency, and drug use: A meta-analysis. *Criminal Justice Review* 40: 505–23. [\[CrossRef\]](#)
- Keough, Kelli A., Philip G. Zimbardo, and John N. Boyd. 1999. Who’s smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Social Psychology* 21: 149–64. [\[CrossRef\]](#)
- Kim-Spoon, Jungmeen, Julee P. Farley, Christopher J. Holmes, and Gregory Longo. 2014. Does adolescents’ religiousness moderate links between harsh parenting and adolescent substance use? *Journal of Family Psychology* 28: 739–48. [\[CrossRef\]](#) [\[PubMed\]](#)
- Kooij, Dorien T. A. M., Ruth Kanfer, Matt Betts, and Cort W. Rudolph. 2018. Future time perspective: A Systematic review and meta-analysis. *Journal of Applied Psychology* 103: 867–93. [\[CrossRef\]](#) [\[PubMed\]](#)
- Laurin, Kristin, Aaron C. Kay, and Grainne M. Fitzsimons. 2012. Divergent effects of activating thoughts of god on self-regulation. *Journal of Personality and Social Psychology* 102: 4–21. [\[CrossRef\]](#) [\[PubMed\]](#)
- Longest, Kyle, and Stephen Vaisey. 2008. Control or conviction: Religion and adolescent initiation into marijuana use. *Journal of Drug Issues* 38: 689–715. [\[CrossRef\]](#)
- Lowicki, Pawel, Joanna Witowska, Marcin Zajenkowski, and Maciej Stolarski. 2018. Time to believe: Disentangling the complex association between time perspective and religiosity. *Personality and Individual Differences* 134: 97–106. [\[CrossRef\]](#)
- McCullough, Michael E., and Brian L. B. Willoughby. 2009. Religion, self-regulation, and self-control: Associations, explanations, and implications. *Psychological Bulletin* 135: 69–93. [\[CrossRef\]](#) [\[PubMed\]](#)
- Meldrum, Ryan C., and Carter Hay. 2012. Do peers matter in the development of self-control? Evidence from a longitudinal study of youth. *Journal of Youth and Adolescence* 41: 691–703. [\[CrossRef\]](#)
- Meldrum, Ryan C., Jacob T. N. Young, and Frank M. Weerman. 2009. Reconsidering the effect of self-control and delinquent peers: Implications of measurement for theoretical significance. *Journal of Research in Crime and Delinquency* 46: 353–76. [\[CrossRef\]](#)
- Miller, Ty, and Mike Vuolo. 2018. Examining the antiscetic hypothesis through social control theory: Delinquency, religion, and reciprocation across the early life course. *Crime and Delinquency* 64: 1458–88. [\[CrossRef\]](#)
- Nie, Fanhao, and Xiaozhao Y. Yang. 2018. The moral community divide: Underage marijuana use across religious contexts. *Journal for the Scientific Study of Religion* 58: 153–73. [\[CrossRef\]](#)
- Oner-Ozkan, Bengi. 2007. Future time orientation and religion. *Social Behavior and Personality* 35: 51–62. [\[CrossRef\]](#)
- Petrich, Damon M., and Christopher J. Sullivan. 2020. Does future orientation moderate the relationship between impulse control and offending? Insights from a sample of serious young offenders. *Youth Violence and Juvenile Justice* 18: 156–78. [\[CrossRef\]](#)
- Pirutinsky, Steven. 2014. Does religiousness increase self-control and reduce criminal behavior? A longitudinal analysis of adolescent offenders. *Criminal Justice and Behavior* 41: 1290–307. [\[CrossRef\]](#)
- Purwono, Urip, Doran C. French, Nancy Eisenberg, and Sharon Christ. 2019. Religiosity and effortful control as predictors of antisocial behavior in Muslim Indonesian adolescents: Moderation and mediation models. *Psychology of Religion and Spirituality* 11: 55–64. [\[CrossRef\]](#)
- 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* 79: 356–78. [\[CrossRef\]](#)



- Rounding, Kevin, Albert Lee, Jill A. Jacobson, and Li-Jun Ji. 2012. Religion replenishes self-control. *Psychological Science* 23: 635–42. [[CrossRef](#)]
- Seto, Christopher H. 2021. Understanding delinquency among the spiritual but not religious. *Sociology of Religion* 82: 156–78. [[CrossRef](#)]
- Shepperd, James A., Wendi Miller, and Colin Tucker Smith. 2015. Religiousness and aggression in adolescents: The mediating roles of self-control and compassion. *Aggressive Behavior* 41: 608–21. [[CrossRef](#)]
- So, Suzanna, Noni K. Gaylord-Harden, Dexter R. Voisin, and Darrick Scott. 2018. Future orientation as a protective factor for African American adolescents exposed to community violence. *Youth and Society* 50: 734–57. [[CrossRef](#)]
- Steinberg, Laurence, Sandra Graham, Lia O'Brien, Jennifer Woolard, Elizabeth Cauffman, and Marie Banich. 2009. Age differences in future orientation and delay discounting. *Child Development* 80: 28–44. [[CrossRef](#)] [[PubMed](#)]
- Stoddard, Sarah A., and Jennifer Pierce. 2018. Alcohol and marijuana use and intentions among adolescents: The role of the reasoned action approach and positive future orientation. *Youth and Society* 50: 758–79. [[CrossRef](#)]
- Stoddard, Sarah A., Marc A. Zimmerman, and Jose A. Bauermeister. 2011. Thinking about the future as a way to succeed in the present: A longitudinal study of future orientation and violent behaviors among African American youth. *American Journal of Community Psychology* 48: 238–46. [[CrossRef](#)] [[PubMed](#)]
- Thomson, Robert A., Jr. 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: 326–46. [[CrossRef](#)]
- Tonn, Bruce E., and Fred Conrad. 2007. Thinking about the future: A psychological analysis. *Social Behavior and Personality* 35: 889–902. [[CrossRef](#)]
- Ulmer, Jeffery T., Scott A. Desmond, Sung Joon Jang, and Byron Johnson. 2012. Religious involvement and dynamics of marijuana use: Initiation, persistence, and desistence. *Deviant Behavior* 33: 448–68. [[CrossRef](#)]
- Varma, Malini, Lindsey S. Moore, Jennifer S. Cataldi, Anthony C. Estoup, and David G. Stewart. 2017. Religiosity and adolescent marijuana use. *Mental Health, Religion, and Culture* 20: 229–38. [[CrossRef](#)]
- Walker, Carmella, Michael G. Anette, Thomas A. Wills, and Don Mendoza. 2007. Religiosity and substance use: Test of an indirect-effect model in early and middle adolescence. *Psychology of Addictive Behaviors* 21: 84–96. [[CrossRef](#)]
- Walters, Glenn D. 2020. Prosocial peers as risk, protective, and promotive factors for the prevention of delinquency and drug use. *Journal of Youth and Adolescence* 49: 618–30. [[CrossRef](#)]
- Watterson, Kaylyn, and R. Brian Giesler. 2012. Religiosity and self-control: When the going gets tough, the religious get self-regulated. *Psychology of Religion and Spirituality* 4: 193–203. [[CrossRef](#)]
- Yeung, Jerf W. K., Yuk-Chung Chan, and Boris K. Lee. 2009. Youth religiosity and substance use: A meta-analysis from 1995 to 2007. *Psychological Reports* 105: 255–66. [[CrossRef](#)] [[PubMed](#)]