

PUFF, PUFF, PASS THE BIBLE: AN EMPIRICAL REPLICATION ANALYSIS OF  
RELIGIOSITY AND ATTITUDES TOWARDS MARIJUANA LEGALIZATION

by

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## **DEDICATION**

This study is wholeheartedly dedicated to my beloved mother and father, who have been my source of inspiration and gave me strength when I thought of giving up, who continually provide their moral, emotional and financial support.

To my sisters, brother, relatives, mentors, friends and classmates who shared their words of advice and encouragement to finish this study.

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## **ABSTRACT**

Despite marijuana's lengthy history being negatively framed and labeled by religious and secular institutions, the United States has slowly become more accepting, with various states across the country taking the initiative to legalize medicinal and/or recreational marijuana use. In order to investigate the possible changing attitudes towards marijuana legalization support and their association with an individual's perceived religiosity level, this study is replicating an empirical study that Daniel James Krystosek (2016) conducted using the same statistical data analysis software (SPSS) and method. In utilizing the more recent 2016 General Social Survey, univariate, bivariate, and multivariate tests were conducted and numerous insights were found. Controlling for demographic, political, and economic covariates, religious service attendance (attachment) and belief in the Bible as God's word (belief) are found to be significant independent variables, along with the control variables of being from an other race, political ideology (conservative and moderate), gender, marital status, age and education. Compared to Krystosek (2016), my results indicate that religious salience and believing the Bible's literalness as inspired word are no longer significant and impactful predictors on U.S. opinions towards marijuana legalization support.



## I. INTRODUCTION

From its native home in Central Asia, cannabis has traveled the world over the centuries. Derived from the *Cannabis* genus, there are three species of the plant: indica, sativa and ruderalis (Hudak 2016). Each acquires its own distinct look and effect but in comparison, indica and sativa are most popular because of their higher potency. These effects and potency come from the dozens of chemicals within cannabis such as: cannabinoids, cannabidiol (CBD) and tetrahydrocannabinol (THC). Thus, whether rolled in a joint and smoked, baked into brownies and eaten or extracted into an oil and vaped, its effects can be euphoric in nature. As these effects are mind altering, the morality of its use has been questioned.

In spite of decades of negative framing and labeling, the United States (US) has finally come to witness multiples states taking the initiative to legalize medical and recreational marijuana in recent years. “By the start of 2016, twenty-five states and the District of Columbia had established or were in the process of establishing medical marijuana programs” (Hudak 2016:144). The US started legalizing recreational marijuana for adult use in 2012. As of 2018, Washington DC and nine states (Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, Vermont and Washington) have legalized recreational marijuana (Business Insider 2018). Consequently, if the trend of marijuana legalization, medicinal or recreational, is to continue with more states following suit, its effects on societal perception and acceptance could change.

Besides marijuana’s lengthy appearance in politics, its use and acceptance in religions is convoluted and long-standing. Some of the earliest religions around the world such as Zoroastrian (Persia), Shintoism (Japan), Buddhism (Tibet, India and China),

Hinduism (India), Islam (Middle East), Bantus (Africa) and Nordic mythology (Scandinavia) have referred to using cannabis for medicinal, ceremonial and spiritual uses. In regard to contemporary religions, the Zion Coptic Church is a Christian sect that believes cannabis is the sacred “green herb” referred to in the Bible and the Biblical secret/sweet incenses and anointing oils (Herer, Cabarga and McCormick 1998). It is passages such as, Ezekiel 34:29, “I will raise up for them a plant of renown, and they shall be no more consumed with hunger in the land, neither bear the shame of the heathen anymore,” that followers would believe cannabis is the plant being mentioned.

Originally branching from the 1970s Rastafari movement, the Zion Coptic Church fundamentally experienced the infringement of their American religious freedoms as their religious sacrament of marijuana use became problematic and unacceptable with its increasing criminalization. Carl Eric Olsen, a member of the Zion Coptic Church, experienced this first hand when he was denied a religious-use exemption from the federal marijuana laws. Apparently, as marijuana is criminalized it can be problematic because religions are not able to fulfill their American right of religious freedom.

In agreement with Social Control theory, religion/religiosity is a type of social bond that helps to promote individual conformity (i.e. attitudes on marijuana use/ marijuana legalization) and reducing delinquency (i.e. marijuana use) (Hirschi 1969 as cited in Krystosek 2016). Thus, an empirical study exploring the relationship between religion/religiosity and attitudes toward marijuana legalization will potentially confirm and further illustrate how influential religion is in forming the individual opinions of people regarding marijuana acceptance. On the other hand, this exploration could also provide evidence discrediting religion’s ability to influence and conform society’s

opinions on marijuana legal control. Whether religion still plays a role in forming a person's view toward legalizing marijuana, this analysis is imperative for society to understand the changing political landscape occurring within our country.

Rather than characterize the legalization debate in terms of secular and religious positions throughout history, this research project intends to replicate an empirical study that Daniel James Krystosek carried out in 2016 utilizing the General Social Surveys, a nationally representative dataset. As various states are decriminalizing and legalizing medicinal and recreational marijuana while contradicting federal law, their societal impact on the attitudes towards legalizing marijuana need to be explored so that societal change can be identified and measured. Attitudinal change might be affected by level of religiosity. Therefore, the intent of this research project is to determine whether religiosity has an impact on attitudes toward marijuana legalization: by replicating an earlier study with more recent data I can elucidate whether or not the effect of religiosity on marijuana acceptance have changed. This analysis is important because attitudes appear to be changing rapidly among the general population in the US. As the development of opinions is taking a more accepting stance, determining if religiosity is still relevant in forming society's judgement/attitude on marijuana issues is crucial in examining what may influence someone's position.

Accordingly, this research project will apply the same theoretical framework, variables and statistical testing Krystosek (2016) executed in order to replicate. Whereas he utilized the General Social Surveys (GSS) of 2006, 2008, and 2010 combined, this research project will use the single most recent GSS dataset from 2016. By using this newer GSS dataset, I will be able to measure possible changes in marijuana legalization

support while testing Hirschi's Social Control theory (1969), which is rooted in a perspective grounded in the work of Hobbes and Durkheim (Bartollas 1985 as cited in Taylor 2001). While following this same theoretical framework incorporated by Krystosek (2016), the GSS also offers necessary variables optimal in measuring and testing Hirschi's (1969) Social Control theory, unlike other potentially competing theories (i.e. General Strain, Social Learning, Self-Control).

Notwithstanding the religious significance of this research project discussed above, the replication finding of this study will also allow the opportunity for a comparison to be made between data collected six years apart from each other, and to speculate how impactful state marijuana legalization and other social changes have been on the opinions of religious individuals. Especially in this time of heightened marijuana legalization, the social effects legal marijuana could have on society are unknown and deserving of research.

## II. LITERATURE REVIEW

Marijuana is one of the fastest changing and most widely debated topics and policy issues in the US. As expected, there are scholars that study Americans' changing views on marijuana use and marijuana legalization. The majority of previous research examining the effects of religiosity on attitudes toward marijuana legalization and use vary in the population sampled, sample size, and other characteristics, but the findings remain consistent. Whether sampling high school students, college students or adults, a substantial amount of prior research supports the negative association between religiosity and attitude toward marijuana use and legal control (Burkett & White 1974; Francis 1997; Galston and Dionne 2013; Hoffmann and Miller 1997; Khatapoush and Hallfors 2004; Krystosek 2016; Martino and Truss 1973; Madanjit 1977; Palamar 2014; Palamar, Ompad and Petkova 2014; Schnabel & Sevell 2017; Simpson and Hagan 1981; Schwadel and Ellison 2017; Stylianou 2004). This finding is not a novel one with regard to overall attitudes toward substance use (alcohol, tobacco, marijuana, heroin, glue and butane gas). For example, Francis (1997) found that personal religiosity and Protestant affiliation are positively correlated with rejection of substance use, while controlling for individual differences in personality. As Martino and Truss (1973) evaluated drug use and attitudes toward social and legal aspects of marijuana in a large metropolitan university with 788 sampled students, they discovered that attitudes toward marijuana are positively correlated with marijuana use and to other drug use. Notwithstanding this significant correlation linking "use" to "attitude," Martino and Truss (1973) also found that "those who are religiously active have less favorable attitudes overall toward marijuana than those who are inactive, with the difference in the same direction at each level of reported

marijuana use, it not surprising and agrees with the finding that those subjects who were religiously active are less likely to use marijuana to begin with” (Martino & Truss 1973:125).

## **RELIGIOUS SENTIMENT TOWARD MARIJUANA USE IN THE 20TH CENTURY**

Throughout US history, cannabis has not always been accepted by society. Once prohibition began in the 1930s, the Federal Bureau of Narcotics (FBN) began promoting all of the stereotypical old-age myths about how marijuana induces chaos and serious deviance. Denouncing it as “the Devil’s weed” with an unrighteousness connotation, the FBN would use society’s religious values and fear of eternal damnation to push their agenda of eradicating marijuana (Lee 2012). Although the negative stigmatization of marijuana was rooted in anti-immigrant sentiment and xenophobia, the negative association with marijuana has had a lasting impact associated with religious undertones.

Although this animosity and fear of foreigners is what initiated the attack on marijuana, presidents including Eisenhower, Kennedy, Johnson, and Nixon have taken similar stances in demonizing marijuana. Nixon’s presidency took the most aggressive position to fight the domestic battle with marijuana and ultimately, began the War on Drugs, which would continue by future presidents (Hudak 2016). Even though there are a few presidents who did not take a stance as aggressive as Nixon, it remains clear in the numerous drug policies and laws enacted that marijuana has often been viewed by the public as a serious problem.

Evidence from sociological research and political history suggests that religiosity is one of the strongest possible explanations among many for attitudes toward drugs in

society. Hobbes ([1651] 1886), for example, found that the supervision of religious doctrine is one of the perquisites of sovereignty, and that it has a massive influence in civic and political life (Milner 1988). Fundamentally, religious institutions provide behavioral and normative guidelines for individuals, which through a collective effect involving fear and power impact people and their choices (Hobbes [1651] 1886).

Although there may be numerous perspectives to analyze religion and its effect on social control, this paper will apply Hirschi's (1969) theoretical framework of Social Control theory.

### **SOCIAL CONTROL THEORY**

According to Hirschi's (1969) Social Control theory, these consistent findings are justified to religiosity acting as a type of social bond to society that helps to promote individual conformity (i.e. negative attitudes toward marijuana legalization) and reduce delinquency (i.e. marijuana use). Consequently, it is not the delinquent act that needs to be explained but conformity. Conformity occurs when a person's bond to society is strongest. In the case when that bond to society is weak or broken, conformity is absent and delinquent acts are more likely to be committed. As Durkheim put it, "The more weakened the groups to which [the individual] belongs, the less he depends on them, the more he consequently depends only on himself and recognizes no other rules of conduct than what are founded on his private interests" (1897:209).

In order to further explain social bonds, Hirschi (1969) classifies and describes four elements of the bond to conventional society. These key elements of a social bond are: attachment, commitment, involvement and belief (Hirschi 1969). *Attachment* can be described as the sensitivity to the opinions of significant others. For example, if a person

does not care about the assumptions or expectations of others, she is insensitive to their opinion, which illustrates her lack of attachment. Palamar (2014) and Palamar, Ompad and Petkova (2014) would agree that attachment is an important variable in marijuana legal control opinions because both studies found that attitudes are influenced by peer disapproval of cannabis use. Specifically, having friends who disapprove of use will strongly decreased the odds of a person supporting legalization and for treating use as a violation. This would mean that in the context of religiosity, a person's social bond will be influenced by her engagement in religious institutions because the more socially involved she is in the religion, the more opportunity she will have to be influenced by fellow religious members and their opinions. Once again, as Durkheim wrote, "We are moral beings to the extent that we are social beings" (Durkheim 1897: 64).

*Commitment* is demonstrated when a person becomes dedicated to a conventional line of action, which in her dedication simultaneously commits her to conformity. The driving forces that strengthen an individual's commitment to a conventional line of action are her ambitions, aspirations, and the risk of losing her acquired reputation and social capital. By this theoretical framework, religious salience will influence an individual's social bond because it will demonstrate how dedicated a person is to religious norms. As Christian-based faith norms are often most agreeable with US social norms, a person will have her social bond to conformity strengthened. Coincidentally, Krystosek 2016, Palamar (2014) and Palamar, Ompad and Petkova (2014) applied this logic when they chose to use religious salience in their measurement of religiosity.

*Involvement* is characterized by an individual's engagement in conventional activities. A few examples of these types of activities are employment, education and



religious services. If people are working and going to school full time, it would be extremely difficult for them to find the time and energy to engage in deviant activities. Thus, it is the case that many people owe a life of morality to the lack of opportunity to do otherwise. In this understanding, it seems reasonable to then assume that an individual's commitment will heavily influence her type of involvement. For instance, if a person is committed to the aspiration of achieving a college education, she will have to devote her time and energy to that conventional line of action that will have her meet her goal successfully (Hirschi 1969). In terms of religiosity, involvement manifests in a person's engagement in religious services/activities and personal involvement in demonstrated in prayer. For example, if a Christian is dedicated to the traditional religious doctrines of Christianity and has the goal of getting into Heaven in the afterlife, she will engage in conventional religious activities such as Sunday service, Bible study and prayer so that she can achieve heavenly status one day. By this analysis, as religious involvement increases, a person's social bond will simultaneously increase. Agreeably, many researchers have applied church attendance in their studies involving religion/religiosity and marijuana attitudes (Burkett and White 1974; Francis 1997; Galston and Dionne 2013; Krystosek 2016; Palamar, Ompad and Petkova 2014; Simpson and Hagan 1981; Weeden and Kurzban 2017).

Lastly, *belief* is described as the variation of confidence in the moral validity of social rules (Hirschi 1969). More clearly, this means that a person must believe in traditional norms in order to be strongly bonded to society. This theoretical concept is best applied in religiosity when analyzing the extent to which a person interprets the Bible literally. If a person thinks the Bible is the actual word of God, she will not only be

strongly bonded to traditional religious norms but also to societal norms in general. Schnabel and Sevell (2017), Trevino and Richard (2002) and Krystosek (2016) would agree that Bible literalness is an important factor in explaining a person's bond to religion because each study chose to include literalness in their measurement of religiosity. In comparison to the other three elements of the social bond, belief is heavily influenced by attachment. As it is described, it is the respect a child feels for a parent that drives her obedience to the rules her parents lay down (Hirschi 1969).

Although Social Control theory is intended to assist this research project theorize what the relationship will be like between religiosity and marijuana legalization attitudes, competing theories such as General Strain, Social Learning, and Self-Control have been tested with regard to their efficacy in explaining drug use. For instance, "measures of social learning theory, including imitation and differential association, differential reinforcement and definitions favorable to drug use have all received substantial empirical support" (Akers and Cochran 1985; Ford 2008; Kendal 1973; Peralta and Steele 2010; Schroeder and Ford 2012 as cited in Bukky 2017:66). Although similar in the way that both attempt to provide an explanation for social conformity, Social Control theory will ultimately be the theoretical framework used because it is not only consistent with the framework applied in Krystosek (2016) but also for the fact that the GSS lacks variables needed to test other competing theories. Furthermore, since this research project is only focusing on support/opposition for marijuana legalization, theories such as Strain and Self-Control that focus on use are less relevant.

## **RECENT CHANGING OF ATTITUDES**

While Hirschi's (1969) theoretical framework justifies the consistent finding that

religiosity and support for marijuana are inversely related, more recent research findings within the past decades are contradictory, with some studies beginning to suggest religion's lack of impact on marijuana issues and liberalization of attitudes toward marijuana support for the religious affiliated. One of the earliest studies touching on this discovery is from Hoffman and Miller (1997), who researched religious affiliation and its effect on political and social attitudes from 1972 to 1994 in the US. They found that certain religious groups are converging and diverging in attitudes towards marijuana legalization. Specifically, Conservative Protestants, Moderate Protestants, Liberal Protestants, Black Protestants and Jews were becoming increasingly less tolerant, whereas Catholics were diverging slightly from the other groups towards more support for marijuana legalization.

Trevino and Richard (2002) found that Bible believers are less likely to support legalization of cocaine and heroin but were no less likely to support legalization of marijuana in their low-income metropolitan (Houston) sample from 1997 to 1998. More recently, Galston and Dionne (2013) found White Evangelicals and Hispanic Catholics oppose legalization of marijuana, though White mainline Protestants and White Catholics are evenly divided on the issue. Comparatively, African American Protestants are the only group that are found to be slightly leaning towards legalization support. This literature seems to indicate an overall liberalization of views with regard to marijuana legalization over time.

Concerning church attendance, Galson and Dionne (2013) found that those who attend once a week or more were more opposed of legalization, whereas those who attend occasionally are more in favor. Certainly this finding reiterates the consistent pattern that

the more a person is involved in her religion and attend religious services, the less likely she is to support marijuana but nevertheless, there is beginning to be a small percent of people who are occasionally attending church and believe that marijuana should be legalized in the US. In conducting a three-wave longitudinal study from 1973 to 2014, Schwadel & Ellison (2017) concluded that although the religiously unaffiliated are more likely than affiliated to support legalization across periods, support among the religious affiliated has gradually increased.

Although Schnabel and Sevell (2017) found that Bible literalists were more in opposition to marijuana legalization compared to those who view the Bible as a book of fables and the Bible as inspired word, views are increasing in legalization support. While they researched both marijuana and same-sex marriage attitudes, they found that people hold these attitudes in tandem. It was also found that there has been a steep decline in the amount of people who support legalizing neither and a notable increase in the amount of those who support legalizing both marijuana and same-sex marriage. This also suggests “a society-wide redefinition of both behaviors as publicly accepted issues of individual autonomy” (Schnabel and Sevell 2017: 157). Regardless of the effect of religion, the finding that attitudes toward marijuana are becoming more liberal is not surprising because as Nielsen (2010) discusses in his analysis of period and cohort effects on American attitudes toward marijuana-related issues, tolerance of marijuana legalization attitudes have increased both over time and across cohorts.

As more recent findings are weakening the argument that there is an inverse or lack of relationship between religion/religiosity and attitudes towards marijuana legal control, this research project has the potential to confirm or refute Social Control theory’s

assumption on religion. Perhaps in this new generation of marijuana decriminalization and legalization of medical and/or recreational marijuana, religion/religiosity may no longer be acting as a social control bond for society, at least in regard to marijuana legalization attitudes. If this is the case, it is critical to understand the complex operationalization of measuring religiosity that previous literature has applied.

### **PREVIOUS LITERATURE'S VARIABLE MEASUREMENTS**

When the current literature analyzes religion/religiosity, many researchers differ on the number and combination of measurements. Martino and Truss (1973) measured it by utilizing only two variables: religious affiliation and whether an individual is active versus inactive in that religion (i.e. Jewish-inactive v. Jewish-active). Interestingly, Burkett and White (1974) applied two measurements relating to religiosity in their study; supernatural sanctions and church attendance. There were two variables used to measure supernatural sanctions; belief in life and death and belief the devil exists. Schnabel and Sevell (2017) also measured religiosity by religious affiliation but chose to include views on the Bible as a second measure.

As previously touched on, Schwadel and Ellison (2017) conducted a three-wave longitudinal study in which they measured religious affiliation with dummy variables, no religious affiliation and Evangelical Protestants and measured religiosity by a single variable of religious service attendance. Likewise, Khatapoush and Hallfors (2004) and Simpson and Hagan (1981) also used the single variable of church attendance as their measurement for religiosity. Palamar (2014) measured religiosity with two variables, religious service attendance and religious salience. Similarly, Palamar, Ompad and Petkova (2014) applied the same measurement of religiosity but chose to do a composite

score of religious attendance and religious salience.

On the other hand, Stylianou (2004) measured religiosity by four variables: belief in the existence of god, belief in the devil, belief in life after death and belief in heaven and hell. It was found that religiosity affects attitudes indirectly through perceived immorality. Similarly, Krystosek (2016) measured religiosity by combining four variables but used religious service attendance, religious salience, frequency of praying, and views on the Bible. Francis (1997) included three variables in the measurement of personal religiosity (prayer, church attendance, belief in god) and found that all three measures are significantly correlated with attitude towards substance use. In addition, belief in god was found to be the strongest correlation, whereas church attendance was weakest. This “suggest that is is personal belief rather than public practice which is most important in shaping the relationship between religiosity and attitude toward substance use” (Francis 1997:101).

From these diverse measures, it is apparent that religiosity is able to be analyzed in multiple ways, which allows for interesting insights on religion and religious opinions. It is also apparent, however, that there is no agreed-upon operationalization for religiosity. I believe these inconsistencies are due to the limitation in researching religion quantitatively and using secondary data. Since there are numerous religions and levels of spirituality, the study of religion is complex when analyzed empirically because in order to attain a big picture of religions effects, researchers have to choose multiple diverse measures/variables when handling big data. Therefore, no amount or combination of variables will totally explain an experience that is so subjective and all-encompassing, though having a consistent high reliability alpha on a particular measure of religiosity

across multiple studies might help alleviate this limitation. Another aspect of the issue is understanding that the majority of religiously focused quantitative studies use secondary data. These types of data only allow researchers to use what the dataset provides, which may be limiting for some researchers (i.e. insufficient sample size, missing data, poorly worded survey questions etc).

Due to our Western location, it is often that Christianity gets heavily emphasized and minority religions and their spiritual experiences get neglected and under researched. Francis (1997), Hoffman and Miller (1997) and Martino and Truss (1973) exemplify this phenomenon as their samples only included Christian based faith believers (Protestant, Catholic, Judaism). It is apparent that minority religions like Buddhism, Hinduism or Native American religions are underrepresented and often explicitly excluded. Not surprisingly, several researchers in the field find their sample not diverse enough or lacking appropriate representation (Khatapoush and Hallfors 2004; Krystosek 2016).

Moreover, this phenomenon is especially prevalent among those of Asian descent because of their history of religious regulation. Tanaka (2010) found that Japanese people come to consider themselves “non-religious” as a way of survival to not be punished by political authorities, nor be stigmatized in their community. Besides this insightful finding, Tanaka (2010) also found that “Japanese people think of religion (shūkyō) as revealed religion such as Christianity that has specific doctrinal belief and faith” (p. 845). Thus, she points out that there are limitations in measuring religiosity and spirituality in surveys developed in a Christian/Western context, especially in regard to the Japanese descent population. Let alone the importance of question phrasing, Krystosek (2016) mentions how the recategorization of races and religions into single categories was his

biggest limitation.

Since there is lack of presence of these religions in the US, it is difficult for researchers to analyze and compare these different spiritual experiences. Since most of American society is composed of people who belong to Christian-based faiths, this leads the majority of survey questions only applying to them. This constitutes a dilemma in the research because some questions may not be applicable or relevant for those who identify as a member of a minority religion. For instance, the General Social Survey (GSS) asks specifically about how literally a person interprets the Bible. Certainly, this question will be applicable to Christians but not Muslims, Hindus, nor Buddhists because they do not read the Bible in their religion. These concerns aside, I will test the following hypotheses also tested by Krystosek (2016):

**Hypothesis 1:** Religious service attendance [attachment] will be positively associated with opposition to the legalization of marijuana.

**Hypothesis 2:** Religious salience [commitment] will be positively associated with opposition to the legalization of marijuana.

**Hypothesis 3:** Frequency of prayer [involvement] will be positively associated with opposition to the legalization of marijuana.

**Hypothesis 4:** Literalness of the Bible [belief] will be positively associated with opposition to the legalization of marijuana.



### III. METHOD AND DATA ANALYSIS

For this research project, I conducted an empirical replication of Krystosek's (2016) published study. As I applied a similar theoretical perspective, I have also applied the same variables and statistical testing methods. Therefore, I used secondary data from the General Social Survey (GSS). Whereas Krystosek (2016) pooled data from the 2006, 2008 and 2010 GSS, I used more recent data solely from the 2016 GSS.

The GSS is a nationally acclaimed cross-sectional survey conducted by the National Opinion Research Center (NORC) since 1997. Each year NORC surveys an independently drawn sample of noninstitutionalized English-speaking adults (18 years of age or over) residing within the US. The GSS dataset is suitable for the current study because the survey contains multiple questions concerning religious affiliation and behavior, and social and political attitudes, which were applied to a random sample. This randomization of the sample is optimal especially in an empirical study.

#### Dependent variable

GSS16 interviewers ask respondents, “**Do you think the use of marijuana should be made legal or not?**” I dummy coded this variable to: 0 = Not Legal and 1 = Legal (Krystosek 2016; Schwadel and Ellison 2017). The statistical analyses used complete cases for the dependent variables. Once deletion took place, valid cases for attitudes toward marijuana legalization totaled 1,843 for the year 2016. Although legalization can be executed in various ways, from recreational use and cultivation to large-scale production and dispensaries sales (Hudak 2016), this measure does not allow us to determine support, nor level of support for different forms of legalization but instead for legalization in general (Schwadel and Ellison 2017).

### Independent variable(s)

Although religiosity is conceptually abstract and complex in its operationalization within the realm of research, this project intended to focus solely on general religiosity. This excluded analyses comparing particular religious denominations. Key variables measuring religiosity reflected Travis Hirschi's (1969) four elements of Social Control theory: religious salience (commitment), social participation (attachment), personal participation-prayer (involvement) and the literalness of the Bible (belief). In order to stay consistent in replicating Krystosek's (2016) research method, religiosity was conceptualized by the elements of Social Control theory and operationalized using variables pulled from the GSS16.

The first independent variable, *attachment*, is sensitivity to the opinions of others (Hirschi 1969; Krystosek 2016). For individuals to be sensitive of the opinions of others they must be in social situations, which define these expectations. Measuring attachment, I used religious service participation. The GSS16 interviewer asked respondents, "**How often do you attend religious services?**" Response categories ranged from 0 = Never through 8 = More Than Once a Week. In order to stay consistent with original study, recoding of ranking order was a method conducted on all applicable variables.

The second independent variable, *commitment*, is the value a person puts on conformity to conventional lines of action (Hirschi 1969; Krystosek 2016). Religious salience was used to conceptualize this value. The GSS16 interviewer asked respondents, "**To what extent do you consider yourself a religious person?**" The variable ranged from 0 = Not Religious, 1 = Slightly Religious, 2 = Moderately Religious, 3 = Very Religious (Krystosek 2016).

*Involvement* is the third variable that refers to how often an individual participates in conventional activities (Hirschi 1969). “To measure involvement and to isolate it from overlapping with attachment I look at the individual’s involvement in religion on a personal level as indicated by the frequency of prayer” (Krystosek 2016:62). GSS16 interviewer asked, “**About how often do you pray?**” I recoded responses to: 0 = Never, 1= Less Than Once a Week, 2 = Once a Week, 3 = Several Times A Week, 4 = Once a Day, and 5 = Several Times a Day.

“The final measurement of religiosity/social bond, belief is the acceptance of the moral validity of the society, when individuals believe the morals and values presented are legitimate” (Hirschi 1969, as cited in Krystosek 2016:62). To measure *belief*, literalness of the Bible was utilized. Interviewer asked, “**Which of these statements comes closest to describing your feelings about the Bible?** The Bible is the actual word of God and is to be taken literally, word for word; the Bible is the inspired word of God but not everything should be taken literally, word for word; the Bible is an ancient book of fables, legends, history and moral precepts recorded by man.” I recoded the respondents’ choices to: 2 = The Bible is the actual word of God and is to be taken literally, word for word, 1 = The Bible is the inspired word of God but not everything in it should be taken literally, word for word, 0 = The Bible is an ancient book of fables, legends, history, and moral precepts recorded by men (Krystosek 2016; Schnabel and Sevell 2017).

### Covariates

I controlled for several variables that have been found to be significant predictors of marijuana use and attitudes toward marijuana legalization in previous research. These

control variables, also used by Krystosek (2016) are religious affiliation, race, political ideology, gender, marital status, region, number of children in household under the age of eighteen, age, socioeconomic index (SEI), and education. These control variables were employed to identify any spuriousness in the relationship between religiosity and attitudes on marijuana legalization.

For religious affiliation, there were thirteen response categories that included a variety of Christian religions and Eastern religions. I recoded religious affiliation in four categories as Protestant, Catholic (reference group), Other, and None. In condensing these categories, “Other” indicates Jewish, Other (specify), Buddhism, Hinduism, Other Eastern Religion, Moslem/Islam, Orthodox Christian, Christian, Native American and Inter-Nondenominational. Similarly, race was condensed to four categories and coded as Non-Hispanic White (reference group), Black regardless of Hispanic Origin, Hispanic except for Black, and Other race. “Other race” is a condensed category that included the following: American Indian or Alaska native, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander, and some other race.

Political ideology was recorded into three categories as Liberal (reference group), Moderate and Conservative. The reference group used for gender is Female. Marital status was recoded into Married and Not married (reference group). As for region, the variable was recoded into Northeast, South, Midwest, and West (reference group). Number of children under the age of eighteen ranges from no children to eight children so it was treated as an interval/ratio variable. Similarly, age of respondent was also treated as an interval/ratio variable, having a range from eighteen to eighty-nine.

Concerning socioeconomic index, the GSS uses NORC-GSS Occupational Prestige and Duncan Socio-Economic Index (SEI) scales to calibrate a respondent's socioeconomic status. Responses varied from 17.1 to 97.2. Lastly, education is measured using an interval-ratio scale that had responses ranging from two to twenty years of education.

## **ANALYTICAL PLAN**

While using statistical data analysis software (SPSS), the first step in this statistical process was to conduct a univariate analysis of all essential variables in the GSS 2016. By showing the descriptive statistics (Table 1) and correlation matrix (Table 2), the basic relationship between key variables can be evaluated. Next, bivariate testing was administered with t-tests and chi-square tests (Table 3). The bivariate analysis allowed the relationships and associations between key variables to be examined.

After bivariate testing, a binary logistic regression was executed to investigate whether an individual's level of religiosity predicts their support for the legalization of marijuana (Model 1, Table 4). Next, the bivariate regression analysis repeated itself but now, I added the control variables spoken on above (Model 2, Table 5). The multivariate analysis implemented two different models. Both tested each of the four elements of religiosity and the opposition to marijuana legalization but only Model 2 included covariates.

Similar to Krystosek (2016), there were missing values for the variables of interest with over 25% missing for Independent and Control variables. While he chose to combine three years of GSS surveys (2006, 2008 and 2010) to remedy this statistical dilemma, I applied a method for estimating missing information, multiple imputation

(MI), on the GSS 2016. Due to the significant test results of Little's Missing Completely At Random (MCAR) test, data were imputed accordingly at a thousand iterations for ten datasets, including a three hundred max model parameter. The MI model proved not to be a better fit, however, thus it was determined that further statistical testing will be analyzed using the original GSS 2016 data without imputed figures (N = 1,843).

## IV. RESULTS

**Table 1.**  
Description of Sample (N = 1,843)

	Mean (M)	Standard deviation (SD)	Min	Max
Marijuana Legalization				
Legal Marijuana Should be Legal	.61			
Marijuana should Not be Legal	.39			
Religious Saliency (Commitment)	1.48	1.01	0	3
Religious Service Attendance (Attachment)	3.38	2.80	0	8
Prayer (Involvement)	3.19	1.80	0	5
Literalness of the Bible (Belief)				
God's Word	.32			
Inspired Word	.45			
Book of Fables	.23			
Religious Preference				
Protestant	.48			
Catholic	.22			
Other Religion	.07			
No Religion	.22			
Race				
NonHispanic White	.74			
Black regardless of Hispanic	.17			
Hispanic of any race except Black	.03			
Other Race	.06			
Political Ideology				
Liberal	.30			
Moderate	.37			
Conservative	.33			
Gender				
Male	.45			
Female	.55			
Marital Status				
Married	.63			
Not Married	.36			
Region				
Northeast	.18			
Midwest	.24			
South	.36			
West	.22			
Number of Children	1.78	1.67	0	8
Age of Respondent	48.26	17.53	18	89
SEI (2010)	46.44	22.48	9.0	92.8
Highest Year of School Completed	13.72	3.03	0	20

All of the independent and control variables were found to have a significant relationship with the dependent variable (attitude on marijuana legalization) except identifying with other religion, being White, being Black, being from the Northeast,

Midwest, South, and West, and SEI (Table 2.). Those variables that have a positive correlation with attitudes on marijuana legalization are believing the Bible is inspired word (belief) or believing the Bible is a book of fables or other, not identifying with religion, having liberal or moderate political views, gender, not being married, and education. On the other hand, a negative correlation was found between attitudes on marijuana legalization and religious salience (commitment), religious service participation (attachment), prayer (involvement), believing the Bible is God's word (belief), identifying as Protestant or Catholic, being Hispanic of any race except Black or other race, having conservative political views, the number of children, and age.



**Table 2.**  
Correlation Coefficients of Variables (N = 1,176)

	1	2	3	4	5	6	7	8
1 Marijuana (1=legal)	1	-	-	-	-	-	-	-
2 Religious Salienc (Commitment)	-.271**	1	-	-	-	-	-	-
3 Religious Attendance (Attachment)	-.302**	.595**	1	-	-	-	-	-
4 Pray (Involvement)	-.192**	.588**	.527**	1	-	-	-	-
5 Bible God's word (Belief)	-.265**	.400**	.423**	.374**	1	-	-	-
6 Bible Inspired word (Belief)	.057*	0.025	-.059*	0.044	-.613**	1	-	-
7 Bible fables/other (Belief)	.223**	-.470**	-.395**	-.463**	-.379**	-.499**	1	-
8 Protestant	-.148**	.385**	.341**	.356**	.335**	0.002	-.370**	1
9 Catholic	-.051*	.116**	.087**	.057*	-.062**	.168**	-.128**	-.517**
10 Other religion	0.029	-0.036	-.050*	0.002	-.102**	-0.042	.161**	-.270**
11 No religion	.210**	-.557**	-.466**	-.486**	-.279**	-.145**	.476**	-.512**
12 Nonhispanic whites	0.022	-.106**	-.109**	-.165**	-.164**	.076**	.091**	-.082**
13 Black regardless of hisp	0.042	.095**	.104**	.170**	.159**	-.052*	-.113**	.166**
14 Hispanic of any race except black	-.074**	0.025	0.024	0.043	.065**	-0.025	-0.042	-.064**
15 Other race	-.053*	0.026	0.019	0.002	0.003	-0.04	0.044	-.064**
16 Liberal	.174**	-.222**	-.175**	-.182**	-.154**	-.076**	.256**	-.176**
17 Moderate	.060*	-0.003	-.054*	0.002	-.053*	.095**	-.053*	-0.031
18 Conservative	-.230**	.219**	.224**	.174**	.204**	-0.023	-.194**	.202**
19 Gender (1=male)	.089**	-.107**	-.103**	-.254**	-.073**	-0.015	.097**	-.066**
20 Marital (1=married)	.061*	-0.016	-.100**	0.01	0.007	0	-0.008	-0.001
21 Northeast	0.038	-.085**	-.068**	-.080**	-.100**	0.043	.059*	-.137**
22 Midwest	-0.011	0.005	0.034	0.003	-0.001	0.004	-0.004	-0.013
23 South	-0.031	.140**	.125**	.130**	.169**	-.061*	-.114**	.209**
24 West	0.012	-.090**	-.117**	-.080**	-.102**	0.026	.082**	-.102**
25 Number of children	-.160**	.168**	.164**	.197**	.143**	-0.015	-.139**	.086**
26 Age of respondent	-.176**	.215**	.131**	.167**	.090**	-0.018	-.078**	.120**
27 SEI	0.021	-0.04	0.014	-.070**	-.217**	.125**	.092**	-0.03
28 Highest year of school completed	.123**	-.099**	-0.008	-.090**	-.240**	.118**	.125**	-0.039

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

**Table 2. Continued**

9	10	11	12	13	14	15	16	17	18
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-
-.152**	1	-	-	-	-	-	-	-	-
-.289**	-.151**	1	-	-	-	-	-	-	-
.058*	-0.017	.051*	1	-	-	-	-	-	-
-.139**	-0.04	-0.034	-.763**	1	-	-	-	-	-
.155**	-0.042	-.052*	-.318**	-.087**	1	-	-	-	-
-0.006	.130**	0	-.407**	-.112**	-.046*	1	-	-	-
-0.003	.069**	.172**	-0.039	0.015	0.006	0.046	1	-	-
0.03	0.041	-0.018	-0.036	.051*	0.003	-0.018	-.497**	1	-
-0.028	-.108**	-.148**	.075**	-.067**	-0.009	-0.027	-.460**	-.542**	1
-0.025	-0.038	.128**	0.008	-0.004	0	-0.008	0.017	-.053*	0.037
-0.042	0.022	0.033	-0.037	.066*	-0.04	0.001	-0.009	0.031	-0.022
.110**	.072**	0.01	.058*	-0.044	0.006	-0.044	.050*	0.003	-.051*
0.043	-0.036	-0.005	.097**	-.092**	-0.024	-0.015	-0.027	0.007	0.018
-.107**	-.069**	-.100**	-.130**	.196**	-0.045	-0.037	-.064**	0.015	0.046
-0.021	.050*	.112**	-0.002	-.093**	.071**	.099**	.056*	-0.028	-0.026
.074**	-.082**	-.126**	-.078**	0.035	.052*	.051*	-.099**	0.02	.076**
0.029	-0.02	-.161**	.187**	-.126**	-.102**	-.069**	-.088**	-.052*	.139**
-0.019	.077**	0.007	.147**	-.138**	-.105**	0.03	.068**	-.109**	0.047
-.073**	.104**	.054*	.125**	-.069**	-.140**	-0.014	.140**	-.106**	-0.027

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

**Table 2. Continued**

19	20	21	22	23	24	25	26	27	28
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-
-.080**	1	-	-	-	-	-	-	-	-
-0.035	0.02	1	-	-	-	-	-	-	-
0.039	-0.004	-.259**	1	-	-	-	-	-	-
-0.003	0.006	-.349**	-.425**	1	-	-	-	-	-
-0.005	-0.02	-.246**	-.299**	-.402**	1	-	-	-	-
-.071**	0.046	-.068**	0.03	.050*	-0.026	1	-	-	-
-0.033	.268**	0.032	0.011	-0.004	-0.037	.353**	1	-	-
0.028	-.107**	0.027	-0.01	-.048*	0.042	-.078**	.107**	1	-
-0.028	-.090**	.052*	-0.006	-.067**	0.037	-.233**	-0.015	.566**	1

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

The t-test results (Table 3) showed many significant differences between people who support and oppose the legalization of marijuana. Individuals who support and oppose the legalization of marijuana **differed on all variables except socioeconomic status**. Regarding religiosity independent variables, all were found to be significant, which indicates there is a significant difference between the means of those who support and oppose marijuana legalization. The average religious salience (commitment) value for people who support marijuana legalization is approximately 1.3, whereas for those who oppose it is approximately 1.8 with a range of 0 to 3. Religious service attendance (attachment) is measured with a range of 0 to 8 and attains an average value for people who support marijuana legalization at approximately 2.7 compared to the average value for people who oppose marijuana legalization at approximately 4.4. The average value for people who support marijuana legalization in personal prayer (involvement) is approximately 2.9 and for those who oppose it is approximately 3.6 with a range of 0 to 5.

A significant difference between the means for people who believe the Bible is God's word (belief) across those who support and oppose marijuana legalization is found. The approximate mean values are 0.22 for support and 0.47 for opposition of marijuana legalization. There is also a significant difference found between the means for people who believe the Bible is a book of fables. The approximate mean values are 0.31 for support and 0.12 for opposition. More interestingly, crosstabulation found 53.5% of Protestants support marijuana legalization, whereas 46.5% oppose. Catholics also have a higher percentage in supporting marijuana legalization than opposition, 56.4% compared to 43.6%. Among those who identify with no religion, 80.1% support marijuana

legalization, while 19.9% are in opposition. Chi-square tests found significant associations between marijuana legalization attitudes and the following: religious preference, race, political ideology, gender, and marital status. Regional location of respondent, on the other hand, was found to have no significant association.

**Table 3.**  
T-Test and Crosstabulation of Variables (N = 1,843)

	Legal		Not Legal		t
	M	SD	M	SD	
Religious Salience (Commitment)	1.26	0.999	1.82	0.927	12.223***
Religious Service Attendance (Attachment)	2.70	2.563	4.43	2.826	13.247***
Prayer (Involvement)	2.92	1.894	3.62	1.547	8.716***
Literalness of the Bible (Belief)					
God's Word	0.22	0.414	0.47	0.499	11.148***
Inspired Word	0.47	0.499	0.41	0.492	-2.440**
Book of Fables	0.31	0.463	0.12	0.321	-10.494***
Number of Children	1.57	1.558	2.11	1.774	6.926***
Age of Respondent	45.81	16.557	52.12	18.313	7.466***
SEI (2010)	46.83	22.179	45.84	22.959	-0.903
Highest Year of School Completed	14.02	2.762	13.25	3.351	-5.100***
	<b>Count</b>	<b>% total</b>	<b>Count</b>	<b>% total</b>	$\chi^2$
Religious Preference					
Protestant	469	53.5	408	46.5	88.751***
Catholic	233	56.4	180	43.6	
Other Religion	89	65.9	46	34.1	
No Religion	327	80.1	81	19.9	
Race					
NonHispanic White	834	61.8	516	38.2	17.497***
Black regardless of Hispanic	208	65.6	109	34.4	
Hispanic of any race except Black	27	42.2	37	57.8	
Other Race	52	50.5	51	49.5	
Political Ideology					
Liberal	393	74.4	135	25.6	104.767***
Moderate	428	65.1	229	34.9	
Conservative	271	45.5	324	54.4	
Gender					
Male	548	65.9	284	34.1	14.515***
Female	578	57.2	433	42.8	
Marital Status					
Married	447	54.2	378	45.8	4.774*
Not Married	287	60.4	188	14.5	
Region					
Northeast	211	65.1	113	34.9	3.679
Midwest	266	60.2	176	39.8	
South	396	59.1	274	40.9	
West	253	62.2	154	37.8	

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

## MODEL 1

The results of Model 1 are shown in Table 4 below. Accordingly, the logistic regression coefficients indicate religious salience (commitment) (-0.242,  $p < 0.001$ ), religious service attendance (attachment) (-0.136,  $p < 0.001$ ), believing the Bible is the inspired word of God (belief) (-0.482,  $p < 0.001$ ) and believing the Bible is God's word (belief) (-1.099,  $p < 0.01$ ) are negative (see column "B"), which indicates that the more a person conforms and bonds to religious activities, the less likely they are to support the legalization of marijuana. The odds ratio for Model 1 (see column "Exp (B)") show that for every 1 unit increase in religious salience (commitment) the odds of support for marijuana legalization goes down by 21.5% (0.785). As for religious service attendance (attachment), for every 1 unit increase, the odds of supporting marijuana legalization goes down by 12.7% (0.873). Compared to people who believe the Bible is a book of fables or other, people who believe Bible is God's word (belief) will have 66.7% (0.333) lower odds of favoring marijuana legalization. On the other hand, people who believe the Bible as inspired word (belief) will have 38.2% (0.618) lower odds of supporting when compared to those who believe the Bible is a book of fables or other. Lastly, prayer frequency was the only religiosity independent variable that was found to not be a significant predictor in determining marijuana legalization support attitudes.

**Table 4.**

MODEL 1: Logistic Regression Opinions on Marijuana Legalization (Marijuana Should be Legal =1) on Religiosity (N = 1,763).

	<b>B</b>	<b>SE</b>	<b>Exp (B)</b>
Religious Saliency (Commitment)	-0.242	0.072	0.785***
Religious Service Attendance (Attachment)	-0.136	0.024	0.873***
Prayer (Involvement)	0.062	0.040	0.122
Literalness of the Bible (Belief)			
God's Word	-1.099	0.183	0.333***
Inspired Word	-0.482	0.160	0.618**
Constant	1.711	0.143	-
Correctly predicted	61.1		
-2 Log Likelihood	2125.026		
Hosmer & Lemeshow chi-square	9.142		

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

## MODEL 2

The results of Model 2 are shown in Table 5 below. As seen, religious salience (commitment) and believe the Bible as inspired word (belief) are no longer found to be significant. Religious service attendance (attachment) and belief in the Bible as God's word (belief) are found to be significant independent variables, along with the control variables of being from an other race, political ideology (conservative and moderate), gender, marital status, age and education. Furthermore, it was found that gender and education are the only positive logistic regression coefficients in the model. All other variables indicate a negative likelihood in favoring marijuana legalization (see column "B").

The results also show that for every single unit increase in religious service attendance the odds of support for marijuana legalization goes down by 12.3% (0.877). Compared to people who believe the Bible is a book of fables or other, people who believe the Bible is God's word will have 62.8% (0.372) lower odds of supporting



marijuana legalization. Findings among other religiosity variables are not significant, so I conclude that there is not enough evidence for prayer frequency, religious salience and believing the Bible as inspired word to be strong predictors in determining marijuana legalization support attitudes.

Compared to non-Hispanic whites, people who identify as “other race” will have 55% (0.450) lower odds of supporting marijuana legalization. Regarding political ideology, being conservative and being moderate are found to be significant. Thus, when compared to those who have liberal political views, people who are moderate politically have 30.5% (0.695) lower odds of supporting marijuana legalization, whereas people who are conservative have 58.4% (0.416) lower odds of supporting marijuana legalization. Gender is one of the positive logistic regression coefficients in the model that was found to be significant. Therefore, the likelihood of men supporting marijuana legalization is 1.581 times more than women supporting marijuana legalization. Regarding marital status, the likelihood of married respondents supporting marijuana legalization is 0.671 times less likely than unmarried respondents supporting marijuana legalization. The model also indicates that for every year respondents gets older, their odds of supporting marijuana legalization goes down by 1.9% (0.981). Education is a positive logistic regression coefficient, which suggests that for every unit increase in education the odds of support for marijuana legalization increases by 1.066. Religious preference, regional location, number of children and socioeconomic status are found not to be significant, indicating their lack of strength when predicting marijuana legalization attitudes. Compared to non-Hispanic whites, people who are Black regardless of Hispanic origin or Hispanic of any race except black also do not have significant odds of supporting

marijuana legalization.

**Table 5.**  
**MODEL 2: Logistic Regression Opinions on Marijuana Legalization (Marijuana Should be Legal =1) on Religiosity, including Covariates (N = 1,176).**

	<b>B</b>	<b>SE</b>	<b>Exp (B)</b>
Religious Salience (Commitment)	-0.059	0.095	0.943
Religious Service Attendance (Attachment)	-0.131	0.031	0.877***
Prayer (Involvement)	0.094	0.053	1.098
Literalness of the Bible (Belief) (ref= book of fables)			
God's Word	-0.988	0.247	0.372***
Inspired Word	-0.358	0.214	0.699
Religious Preference (ref= no religion)			
Protestant	-0.283	0.243	0.754
Catholic	-0.316	0.256	0.729
Other Religion	-0.358	0.326	0.699
Race (ref= Nonhispanic White)			
Black regardless of Hispanic	0.163	0.212	1.177
Hispanic of any race except Black	-0.377	0.383	0.686
Other Race	-0.799	0.316	0.450*
Political Ideology (ref= Liberal)			
Moderate	-0.364	0.177	0.695*
Conservative	-0.876	0.177	0.416***
Gender (ref= female)			
Male	0.458	0.140	1.581***
Marital Status (ref= not married)			
Married	-0.399	0.146	0.671**
Region (ref= West)			
Northeast	0.202	0.221	1.224
Midwest	0.099	0.196	1.104
South	0.125	0.184	1.133
Number of Children	-0.059	0.045	0.943
Age of Respondent	-0.019	.005	0.981***
SEI (2010)	-0.004	.004	0.996
Highest Year of School Completed	0.064	0.029	1.066*
Constant	2.267	0.541	-
Correctly predicted	57.1		
-2 Log Likelihood	1376.428		
Hosmer & Lemeshow chi-square	4.942		

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

## V. DISCUSSION AND CONCLUSION

The purpose of this research project was to examine the relationship between an individual's religiosity and her attitudes toward marijuana legalization. In replicating an earlier study with more current data (GSS 2016), attitudinal changes on marijuana legalization among the general population in the US are examined in order to investigate how impactful religiosity is in determining a person's opinion on whether or not marijuana should be legalized. While exercising social control theory, I hypothesized that people tend to conform within their religion regarding their views toward marijuana legalization. Often, it is this compliance to religious norms that leads marijuana to be viewed as a problematic issue within American society.

After controlling for demographic, political, and economic covariates, *attachment* (church attendance) and *belief* (Bible literalness) were significant predictors of attitudes towards marijuana legalization. More specifically, believing the Bible as actual word of God indicates opposition toward marijuana legalization.

Comparing the same model results to Krystosek (2016), there are some significant differences along with similarities. According to his analysis, all of the independent variables measuring religiosity (religious salience, religious service attendance, belief in the literalness of the Bible [inspired word and actual word of God] were found to be significant, except frequency of prayer, along with the control variables of being Hispanic of any race except black, being other race, political ideology, gender, marital status, and age. In comparison, my results would indicate that religious salience and believing the Bible's literalness as inspired word are no longer significant and impactful predictors on U.S. opinions towards marijuana legalization support. Religious service attendance and

believing the Bible to be actual word of God are consistent with Krystosek's (2016) results as both are found to be strong predictors influencing society's opinions on marijuana legalization. However, my results also indicate that the odds ratio is slightly lower for both religiosity variables. Although frequency of prayer does not seem to have an effect, my correlation coefficient results (Table 2) show that church attendance is highly correlated with frequency of prayer (0.527,  $p < .01$ ). Consequently, it may be the case that the effect of church attendance subsumed the effect of prayer. Concerning comparison among control variables, being Hispanic of any race except black is no longer significant. Highest year of school completed continues to indicate a positive association toward support but is now significant in my model.

Even though religious affiliation and regional location of respondent were not significant in either research models, the comparison in results leave for interesting insights. In Krystosek's (2016) model, being Protestant or Catholic showed negative logistic regression coefficients, while Other religions indicated positive. My results now show all three religious affiliations as being negatively associated towards support, as each have negative logistic regression coefficients. My results also now show positive logistic regression coefficients between region (Northeast, Midwest, South) and opinions toward marijuana legalization, whereas before they were negative. This finding means that instead of there being a negative association towards support, regional location of respondent is now indicating a positive association towards support.

Social control theory tells us that the more an individual is bonded to society, the more likely she is to conform to societal norms and deter from deviance (Hirschi 1969). In terms of religiosity, this leads to the theoretical framework that the more religious a

person is, the more likely she will be bonded to that religion and conform to its norms and doctrine. My results found in this research project are consistent with the original study by Krystosek's (2016) and support the social control theory. It would appear that those religious followers that are avid church goers and interpret the Bible most literally will be most likely to oppose marijuana legalization. This could be because regular attenders of fundamentalist churches would have their traditional values against illicit drug use reinforced most strongly and most frequently. Durkheim (1897) would agree with this theoretical reasoning as he found that religion acts as a societal regulator for people. Similarly, Hobbes (1886) found that religious institutions maintain behavioral and normative guideline that effect people and their choices.

On the other hand, similar to emerging research patterns, my results also suggest a decline in religion's relevance in forming society's judgement/opinions on marijuana legalization (Galston and Dionne 2013; Hoffman and Miller 1997; Schwaldel and Ellison 2017; Trevino and Richard 2002). Notably, t-test results also confirm this liberalization of attitudes as both Protestants and Catholics are in higher percentages of support than opposition. Hoffman and Miller (1997) had a similar result, finding that Catholics were diverging slightly towards support for marijuana legalization, while Protestants and Jews were not. Perhaps, with the increasing legalization within the US, religiosity is playing less of a role in determining attitudes towards marijuana legalization. This may also suggest increased acceptance or, at least, tolerance of legal marijuana amongst religious followers. Therefore, testing social control theory by way of religiosity variables is possibly no longer appropriate. As it would seem, religion's power and ability to conform and deter society from having supportive views towards the legalization of marijuana is

insubstantial.

As similar to other quantitative research in the field of religion, the biggest limitation is the lack of diversity in the categorization of religious affiliation. For example, when I recoded “Other religion,” the category contained several different religions; Judaism, Other (specify), Buddhism, Hinduism, Other Eastern Religion, Moslem/Islam, Orthodox Christian, Christian, Native American and Inter-Nondenominational. This loss of diversity within religious affiliation will not only affect the overall numbers but also inevitably cause minority religions to be under represented and under researched. In order to find insights on minority religions and their unique perception toward marijuana legalization, I suggest future studies evaluate what religiosity means as a concept for these people by oversampling them. The US is a melting pot of ethnicities and races from around the world so research should also reflect such diversity as accurately as possible.

Another limitation is the use of a broadly worded question to measure the dependent variable— attitudes on legalization of marijuana. A more specific question, perhaps looking at what type of marijuana use should be made legal would have been more perceptive. For example, some people may support both medical and recreational use legalization but others may only support medical marijuana legalization. Similar to Krystosek (2016), there is also a limitation in using cross-sectional data because of causality; it is unsure whether the religiosity or marijuana legalization question was asked first.

Let alone the multiple limitations induced by applying secondary data, there is another significant limitation in this research project because I replicated Krystosek’s (2016) study. Firstly, his conceptualization of independent religiosity variables in regard

to Hirschi's (1969) social bond elements are not entirely mutually exclusive. For example, church attendance can not only be a measure for *attachment* but it could also measure *involvement* according to Social Control theory. Secondly, Krystosek (2016) lacks discussion on detailing the reasons behind why he chose that specific religiosity variable to measure that theoretical element. He does touch on one distinction within the element of *involvement*, from which he explained how prayer of frequency would be a measure for personal involvement, instead of church attendance. In order to be fully accurate in measuring each social bond element, conceptualization of independent variables must be mutually exclusive. Since I chose to replicate, this research project is also lacking that distinction and reasoning.

This relationship between individual religiosity and the likelihood of supporting legalized marijuana is convoluted and changing among Americans. As religiosity's effect is different for people with different demographic, political, and economic backgrounds, this research project and its theoretical application will help scholars, researchers, and policy makers by guiding them on the issue more currently. Importantly, in a time when American politics is no longer demonizing but legalizing marijuana, continuing the research on people's inclinations on the issue is vital to follow. Nielsen (2010) discusses the causal ordering of Americans' views and finds that some researchers believe political rhetoric and legislation/policy comes from politicians to public opinion (Beckett 1994; Jacobs & Kent 2007), however other literature suggests public attitudes are what directly and indirectly influences legislation/policy making (Brooks 2006; Burstein 2003, 2006; Page & Shapiro 1983).

To determine which the case is for this study is beyond the scope of this project;

however, my findings may indicate a continued trend in the direction towards liberalization in marijuana policies in the US. Whether the implication is in state or federal politics, my study could help politicians better understand Americans' marijuana-related policy preferences and the possible liberal trend to come in the acceptance of legal marijuana use. Especially during times of political campaigning and lobbying, this information is valuable to gauge voter patterns. For instance, it is apparent within my research project that in a matter of just five years, religiosity's relevance towards marijuana legalization attitudes have changed. From 2010, the latest year of GSS data Krystosek (2016) used, up until 2016 (GSS data I used), religiosity's effect on conforming attitudes towards legal marijuana has decreased. It is also within those five years that many significant changes have occurred in regard to marijuana with regard to media coverage and the law. From 2011 to 2015, Connecticut, Delaware, Illinois, Maryland, Massachusetts, Minnesota, New Hampshire, and New York legalized medical marijuana (Pro Con 2019). In that same time span, Alaska, Colorado, Oregon, Washington, and Washington D.C. legalized recreational marijuana (Business Insider 2018). In a study examining marijuana legal state resident parents and their feelings toward marijuana legalization, Kosterman, Bailey, Guttmanova, Jones, Eisenberg, Hill and Hawkins (2016) found a "significant increase in approval of adult marijuana use and decrease in perceived harm of regular use" (p. 450). Meanwhile, news outlets and social media are continuously keeping up with the changing policy and legislation, framing and labeling the debate. In order to better assess the relationship between public discourse and recreational marijuana policy, McGinty, Samples, Bandara, Saloner, Bachhuber and Barry (2016) conducted a content analysis on news stories published/aired in print,



television and online from 2010 to 2014. More interestingly, authors found that “53% of news stories mentioned pro-legalization arguments and 47% mentioned anti-legalization argument” (p. 114). In comparison to marijuana’s portrayal in the 1930s, marijuana is no longer solely being framed negatively with anti-religious undertones, nor is it being hyper-criminalized. In contrast, more and more states are taking the initiative to legalize and/or decriminalize marijuana.

This research project, like Krystosek’s (2016), will also similarly help advance research studies focusing on social control theory because a unique perspective is applied. Whereas the majority of previous research in the field focuses on bond to delinquency, this research explores the bond to religion and its conformity. This research project will also bring advancements to the study of religion in the field of sociology and social control theory. As the US is a country with a history of strong religious ties, the application of my study shines a light on religion’s current importance in determining society’s feelings towards a federally controlled substance that has deep rooted religious sentiment and negative labeling.

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