

# Reefer Madness to Marijuana Legalization: Media Exposure and American Attitudes Toward Marijuana (1975-2012)

Journal of Drug Issues

1-18

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DOI: 10.1177/0022042616659762

jod.sagepub.com



Richard J. Stringer<sup>1</sup> and Scott R. Maggard<sup>1</sup>

## Abstract

American attitudes toward marijuana have varied greatly from the time it was criminalized in the 1930s through the present day, and public opinion favoring the legalization of marijuana has steadily risen since 1990. It is generally well accepted that the media played a large role in shaping not only marijuana laws but also the general public's attitudes toward marijuana. As such, this study utilized General Social Survey data to examine the relationship between media exposure and attitudes toward the legalization of marijuana from 1975 through 2012, 1975 through 1990, and 1991 through 2012. The findings indicate that while media exposure was not significantly related to attitudes about marijuana legalization from 1975 through 1990, both television and newspaper exposure had a significant positive relationship with favor toward the legalization of marijuana from 1991 through 2012.

## Keywords

marijuana, marijuana legalization, media, public opinion

## Introduction

If you believed the media in the 1930s, you may have thought that opium, morphine, and heroin were dangerous drugs, but “even more dangerous, more deadly, than these soul destroying drugs is the menace of marijuana” (Gasnier, 1936). However, media coverage about marijuana differs greatly today from the negative horror stories of the 1930s Reefer Madness era when marijuana was first outlawed. In addition, public opinion about marijuana has also diverged greatly from earlier decades, and today much of society favors the legalization of marijuana (Caulkins, Hawken, Kilmer, & Kleiman, 2012b). In fact, there has been a fairly consistent increase in the trend toward favor of legalization since 1990. This period also marks a significant turning point in media attention to marijuana as well (Gonzenbach, 1996; Schwartz, 2002; Stryker, 2003). As such, this study examined the effects of media exposure on American attitudes about the legalization of marijuana from 1975 through 2012, as well as the shift in this relationship in 1990.

Prior to 1936, concern over marijuana was mainly concentrated in a select few cities such as New Orleans, and the general public's concern about drugs was focused on other drugs such as

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<sup>1</sup>Old Dominion University, Norfolk, VA, USA

### Corresponding Author:

Richard J. Stringer, Department of Sociology and Criminal Justice, Old Dominion University, Norfolk, VA 23529, USA.  
Email: rstringe@odu.edu

cocaine and opiates that were thought to be dangerous (Armstrong & Parascandola, 1972). Even Harry Anslinger, the Commissioner of the Federal Bureau of Narcotics and “the world expert” on drugs, regarded it as a nuisance drug, unworthy of his organization’s time and energy (Carroll, 2004, p. 65). He believed that efforts should be concentrated on controlling more dangerous drugs such as cocaine and opiates. In fact, marijuana was almost completely ignored until January 1936 when a Reorganization Act was introduced that would have forced Harry Anslinger out of his position and dissolved the Federal Bureau of Narcotics (Carroll, 2004).

At this point, the rhetoric and sentiments toward of marijuana started to shift. Possessing little to no scientific or medical knowledge, Anslinger began to “fabricate horror stories connecting drug use to violent crime” (Carroll, 2004, p. 66). He was associated with the creation and/or exploitation of many educational films and articles about marijuana such as *Assassin of Youth*, *Marihuana*, *the Weed with Roots in Hell*, and *Tell Your Children* (later named *Reefer Madness*) in 1936 (Boyd, 2009). In one article, he called marijuana “as dangerous as a coiled rattlesnake” and told a story of a Florida man who, after smoking marijuana, killed his family with an ax (Anslinger & Cooper, 1937, p. 18). This shift in the marijuana rhetoric led to the first federal marijuana legislation, *The Marihuana Tax Act of 1937*, on October 1, 1937 (Carroll, 2004; Faupel, Horowitz, & Weaver, 2010). This legislation criminalized marijuana possession without a federal tax stamp. However, because this tax stamp was unattainable, all marijuana became illegal.

Because many people in the United States do not have a great deal of direct knowledge about illicit drugs, they tend to get their information from the most common, easily accessed source, the mass media (Gelders et al., 2009). The generation born in the 1920s grew up with little direct knowledge and significant animosity toward drugs (Musto, 1999), and all pre-baby boom cohorts grew up during a time of great negativity toward drugs (Kandel, Griesler, Lee, Davies, & Schaffsan, 2001). The media has great impact on public opinion, plus it has the ability to influence vast numbers of individuals and is conducive to influencing the collective definition of a particular situation. The media is known for portraying the worst case scenarios, placing a negative spin on an event, and exaggerating the issues to sell news (Faupel et al., 2010; Goode, 1999). Kappeler, Blumberg, and Potter (1993) described the mass media as “one of the largest and most powerful mythmakers,” and these myths tend to fill gaps in the knowledge to unanswered questions by the social sciences, thus influencing our social reality (p. 3-4).

Prior research has established a link between the media and public opinion about drugs. However, few studies have examined this phenomenon longitudinally. Public opinion about marijuana today is greatly different from those held in the 1930s *Reefer Madness* era when marijuana was first outlawed. In recent years, media coverage about marijuana has been vast and differed greatly from the negative horror stories of the 1930s. Some differences are the coverage of the various medicinal uses of marijuana in the mainstream media, state-level legalization, public figures admitting to prior use, the costs of enforcement, changes in the attitudes of medical professionals, and the perceived harms and benefits associated with the use of marijuana. These changes could easily represent a change in both opinions about marijuana, and the media’s relationship with opinions about marijuana. Because prior research has shown a decrease in anti-drug media in the late 1980s and an increase in coverage related to the positive medical uses of marijuana in the early 1990s, this study will look at the periods before and after 1990 separately (Gonzenbach, 1996; Schwartz, 2002; Stryker, 2003). Thus, the purpose of this study was to examine the effects of media exposure on American attitudes about the legalization of marijuana from 1975 through 2012, and to examine any differences in the relationship during the periods before and after 1991.

## **Literature Review**

Prior research has illustrated that many factors are related to opinions toward the legalization of marijuana. Research also demonstrates how the media may have influenced public opinion which

leads to the prohibition of marijuana in the 1930s, and more recent studies show how the media continues to strongly influence the public's opinion about drugs. However, the relationship between media exposure and opinions about the legalization of marijuana remains largely overlooked. Because "the news media are a primary source of health information for the general public" (Stryker, 2003, p. 306), there may be a strong relationship between the media exposure and attitudes toward the legalization of marijuana.

Research has shown that the media is related to public opinion about drugs and drug use. In fact, the frequency of articles relating to drugs published in the *New York Times* and *Los Angeles Times* has been shown to account for almost half of the variance in public concern over drugs (Shoemaker, Wanta, & Leggett, 1989). Moreover, exposure to anti-drug television media is also related to attitudes, beliefs, and behavior regarding illicit drugs (Gonzenbach, 1992, 1996; Nielsen & Bonn, 2008; Terry-McElrath, Emery, Szczyпка, & Johnston, 2011). Aggregate media coverage has also been related to adolescent marijuana use as well as attitudes toward marijuana (Stryker, 2003). However, no prior research has examined the relationship between media exposure and attitudes toward marijuana legalization.

In addition, some have found a relationship between the president, the media, and public opinion about drugs. Although the majority of the studies have found some relationship, the direction of the effect is often mixed and illustrates a complex relationship that differs from president to president (Gonzenbach, 1992, 1996; Hawdon, 2001; Hill, Oliver, & Marion, 2012; Johnson, Wanta, & Boudreau, 2004; Oliver, Hill, & Marion, 2011). Overall, there appears to be a reciprocal relationship that indicates that the president has an effect on both the media and public opinion but is also affected by both. The nature of the issue, the rhetorical ability of the president, the amount of stress the president puts on an issue, and real world events also affect the ability of the president to influence the media and public opinion (Johnson et al., 2004). Deconstructing the complexity of this relationship is not a goal that this project aims to undertake, however it is worth noting.

Media content regarding presidential views on marijuana and drugs has also varied over time and between presidents. The early 1990s was also marked by significant media coverage of President Bill Clinton and his statement that he tried marijuana in the past and "didn't inhale" (Ifill, 1992). This may reflect further changes in media content that diverge from other prior presidential statements. For example, although Presidents Ford and Carter favored the legalization of marijuana during their terms in the 1970s, the Reagan and George H. W. Bush Presidencies are associated with much greater hostility toward drugs and increases in the negative rhetoric regarding drugs (Musto, 1999). President George W. Bush attempted to reinstate the war on drugs that began with Reagan and his father; however, the war on terror soon took over public and political concern. When President Obama was initially asked about marijuana offenders, he indicated "we've got bigger fish to fry" (Weiner, 2012).

Some extant literature has examined the changes in the media focus on marijuana during the 1930s era when marijuana was criminalized. Howard Becker (1963) found that there was only one article in the Reader's Guide to Periodical Literature related to marijuana prior to 1935; however, 17 articles were published from mid-1937 to 1939, and 10 of these 17 articles were supplied with information from the Federal Bureau of Narcotics, and five of them used the Florida ax murderer story. A similar trend can be found in American medical journals, which published a total of four marijuana-related articles from 1930 to 1934 and 15 articles during the period from 1935 to 1939 (Armstrong & Parascandola, 1972). The common theme of these articles was to link marijuana to violent and sexual impulses, delirious rage, mental deterioration, and insanity; thus creating a distorted and exaggerated impression on the public about the extent and threat of marijuana (Armstrong & Parascandola, 1972). For example, one physician indicated that "it gives the user a lust to kill unreasonably without motive" (Armstrong & Parascandola, 1972, p. 28). Prominent pharmacists also helped spread these myths by indicating that marijuana

was more dangerous than heroin or cocaine and it produced physical addiction (Armstrong & Parascandola, 1972, p. 28). Even the United Nations' publications and citations doubled during the 1930s compared with those from the previous decade (Kalent, 1968). As such, the increases in media focused on marijuana may be related to the legislation that criminalized it.

The frequency of media attention toward drugs as well as attitudes toward legalization of marijuana has varied similarly in recent decades. In fact, it has been argued that media coverage of drug issues "was like a steady roller coaster ride . . . that plummeted in the early part of 1991" after a plateau stage in the late 1980s (Gonzenbach, 1996, p. 94). Media attention to drugs began to rise in the 1970s preceding the crack epidemic and the declaration of the war on drugs and remained high throughout the 1980s (Shoemaker et al., 1989). Although much of this coverage was negative and focused on crack and cocaine, it may have influenced opinions about marijuana as it is argued to be the bedrock of the war on drugs (Gerber, 2004). In addition, while media attention to drugs rose in the late 1970s and began fall in the early 1990s, favor toward legalization of marijuana declined and increased during these same periods, respectively (Caulkins, Coulson, Farber, & Vesely, 2012a; Nielsen, 2010). Therefore, attitudes toward legalization of marijuana may be correlated with negative media attention.

Although media attention is generally negative toward drugs, there have been increases in positive, and decreases in negative, media attention toward marijuana beginning in the 1990s. Although the majority of media attention remained negative from 1977 through 1999, there has been a decline in anti-marijuana media since 1996 and an increase in positive media indicative of a sustained change in media content (Stryker, 2003). More recent research show that in 2008 and 2009, the majority (about 64%) of media related to medical marijuana was positive and suggestive of a substantial shift in media attention toward medical marijuana (Vickovic & Fradella, 2011). Also, many noteworthy changes in state laws that have decriminalized, legalized medicinal marijuana, and in some cases legalized recreational use have likely drawn media attention (Caulkins et al., 2012b; Millhorn et al., 2009). These positive marijuana promotions come from many sources such as movies and television shows, magazines, and music (Jenks, 1995; Sussman, Stacy, Dent, Simon, & Johnson, 1996). Schwartz (2002) also noted an increase in Internet content that favors legalization and questions the actual risks of the drug. As such, decreases in anti-drug media along with increases in media coverage and websites focused on the positive aspects of marijuana use may be related to the subsequent increase in favor toward legalization of marijuana (Schwartz, 2002; Stryker, 2003).

Changes in media content may be related to increases in the use of medical marijuana because medical marijuana became a "highly salient issue" in the mid-1990s (Musgrave & Wilcox, 2013, p. 115). Increases in the use of marijuana as a medicine may also be related to increases in pro-legalization attitudes as roughly 80% of Americans favor the medical use of marijuana (McCarthy, 2004; Millhorn et al., 2009; Paul, 2003). Medical marijuana legislation such as California's Proposition 215, which was the first state to legalize the medical use of marijuana in 1996, has been shown to affect the publics' attitudes toward both medical and general use, likely due to a reduction in the perceived harm of using the drug (Khatapoush & Hallfors, 2004). Research shows that many physicians favor the legalization of medicinal marijuana (Charuvastra, Friedman, & Stein, 2005; Doblin & Kleiman, 1991; Linn, Yager, & Leake, 1989; Urisky, McPherson, & Pradel, 2011). In addition, an entire sample of 1,035 clinical oncologists thought that smoked marijuana is more effective than the currently available oral synthetic Marinol (Charuvastra et al., 2005). As medical use of marijuana increases along with legislation allowing for it, media coverage is also likely to increase as well. As marijuana becomes less, a part of the war on drugs but more of a medicine useful for the treatment of cancer and other medical problems such as epilepsy this trajectory of increases in favor of legalization is likely to continue to rise.

Prior research has also identified several significant sociodemographic predictors of attitudes toward the legalization of marijuana. First, birth cohort has been shown to be positively

associated pro legalization attitudes (Caulkins et al., 2012; Kandel et al., 2001; Keyes et al., 2011; Nielsen, 2010). This is likely a result of period effects which have changed over time. Because earlier cohorts had less direct knowledge about drugs and were more likely to be exposed to the previously discussed media of the early 20th century, they are less likely to favor legalization than later cohorts who have more direct knowledge of the situation and are therefore less likely to believe media distortions (Caulkins et al., 2012; Nielsen, 2010). Technological advances in recent decades such as computers and the Internet provide the average American the means to conduct his or own research on marijuana, which may help clarify the issues which have plagued marijuana for so many years (Schwartz, 2002; Stryker, 2003).

Political ideology and/or political party affiliation are also strongly related to attitudes toward marijuana legalization (Boaz, 2011; Brown, Glaser, Waxer, & Geis, 1974; Caulkins et al., 2012; Danigelis & Cutler, 1991; Danigelis, Hardy, & Cutler, 2007; Davis, 1997; Rarey, 2002). In addition, gender differences have been noted by various studies in regard to both the use of marijuana as well as attitudes toward marijuana legalization (Agrawal & Lynskey, 2007; Jacobs, 2006; Kerr, Greenfield, Bond, Ye, & Rehm, 2007; Nielsen, 2010; Reinzi et al., 1996). Terry-McElrath, O'Malley, and Johnston (2008) showed that while there are a variety of reasons for stopping or abstaining from marijuana use that there is significant variation by gender and race. One's race or ethnicity has also been shown to be a significant predictor of attitudes toward legalization; however, the results and relationships have varied (Caulkins et al., 2012; Chen & Killeya-Jones, 2006; Lambert, Ventura, Baker, & Jenkins, 2006; Terry-McElrath, O'Malley, & Johnston, 2008; Thornhill, 2011).

Although marijuana use is more likely associated with lower educational levels, those with higher educational levels are more likely to favor the legalization of marijuana (Goode, 1970; Nielsen, 2010). Marriage and parenthood have also been shown to be significant negative predictors of one's attitude toward marijuana legalization (Caulkins et al., 2012; Cubbins & Klepinger, 2007; Yamaguchi & Kandel, 1985). Finally, religion plays a significant role with protestant affiliation indicative of anti-legalization attitudes and those with no affiliation at all favoring it (Caulkins et al., 2012; Hodge, Cardenas, & Montoya, 2001; Hoffmann & Miller, 1997; Merrill, Folsom, & Christopherson, 2005; Nielsen, 2010).

This study will assess the relationship between media exposure and attitudes toward the legalization of marijuana while controlling for other individual-level factors, such as race, gender, education, political ideology, marital status, religion, and birth cohort. Thus, this project will add to the existing body of literature on opinions toward the legalization of marijuana by utilizing 37 years of longitudinal survey data to assess the importance of media exposure. In addition, pre- and post-1990 will be assessed separately due to changes that may have occurred near this period illustrated in the prior literature. Time period will be further controlled through presidential terms rather than year since they may be related to media attention and the rhetoric on marijuana and drugs. This longitudinal assessment of attitudes of the trend in American attitudes toward legalization over a significant period is a methodology that few studies have utilized.

## Method

### *Data Source*

This study utilized secondary data from the General Social Survey (GSS) Cross-Sectional Cumulative Data file from 1972 through 2012 (Smith, Marsden, Hout, & Kim, 2013). This is a national data set consisting of repeated cross-sectional surveys administered annually prior to 1994, and biannually thereafter. The repetition of the questions utilized in this study by the GSS is conducive to the examination of aggregate-level trends over time. The GSS utilizes full probability sample selection beginning in 1975, thus rendering the valid sample of 28,809 representative of the English-speaking U.S.

population above the age of 18 years residing in a non-institutional setting. The study omits those data from years prior to 1975 due to non-probability sampling, and lack of political ideology assessment prior to 1974. Thus, the period of study was the 37-year period between 1975 and 2012. The GSS weight WTSSALL was applied to the data set to account for the adoption of sub sampling design in the 2004 to 2010 samples to account for non-response, and control for the number of adults living in the household surveyed (see Smith et al., 2013, Appendix A).

### *Variables in the Study*

*Dependent variable.* The dependent variable in this study is the respondents' opinions regarding whether marijuana should be made legal. Marijuana legalization opinions are indicated by a dichotomous (dummy) variable with opposing legalization as the reference category.

*Independent variables.* The independent variables in this study will be the time period and media exposure. Media exposure is measured utilizing two separate indicators from the GSS; the frequency of reading the newspaper, number of hours spent watching television per day. The frequency of reading the newspaper is represented by one scale variable which ranges from never reading the newspaper to reading the newspaper every day. The number of hours spent watching the television is a continuous variable, although it was truncated at 6 or more hours due to a positive skew in the original variable.

*Control variables.* This study includes 23 control variables which have been found to be significant predictors of attitudes about the legalization of marijuana in the United States. The control variables include race, gender, education, political ideology, marital status, region of residence, religious beliefs, birth year, current presidential administration, and confidence in the executive branch, television, and the press. Confidence in these institutions is an important control because people do not passively consume information, and exposure to information without confidence in the source may have little impact on one's opinion (Gamson, Croteau, Hoynes, & Sasson, 1992, Nielsen & Bonn, 2008).

All variables were coded as dummy variables with the exception of birth year which was continuous with a range from 1886 to 1992, and confidence in the press, television, and president which are all nominal variables ranging from "hardly any confidence" to a "great deal of confidence." Race was accounted for by the use of several dichotomous measures representing "White," "Other races," and with "African American" which served as the reference category. Gender is a simple dummy variable with female as the reference category. Education is coded as a dummy variable which compares those with a bachelor's degree or more with those with lower levels of education as the reference category. Religion is made up of two dummy variables for Protestants and those with no religion, other religious affiliations are left out as the reference group.

To control for regional diversity in views, two dummy variables represent the southern and pacific regions compared with other regions as the reference category. Because it is important to account for time period when analyzing repeated surveys, 10 dummy variables were included to represent the president in office at the time of the survey (Firebaugh, 1997). The first Clinton term served as the reference category in Models 1, 2, and 4 due to multicollinearity issues, and the first Reagan term served as the reference category in Model 3.

### *Data Analysis*

The study utilized binary logistic regression due to the dichotomous dependent variable. Model 1 ( $n = 28,809$ ) included all sociodemographic, regional, and period control variables to determine individual-level effects on attitudes. Media exposure and confidence variables are added in Model 2 ( $n = 13,555$ ). Models 3 ( $n = 5,899$ ) and 4 ( $n = 7,656$ ) only included cases prior to 1991,

and after the year 1990, respectively. As such, Models 3 and 4 will independently examine the effects of media exposure on American attitudes toward marijuana legalization both before and during the positive trend in favor of legalization of marijuana to examine any differences in the role of media exposure.

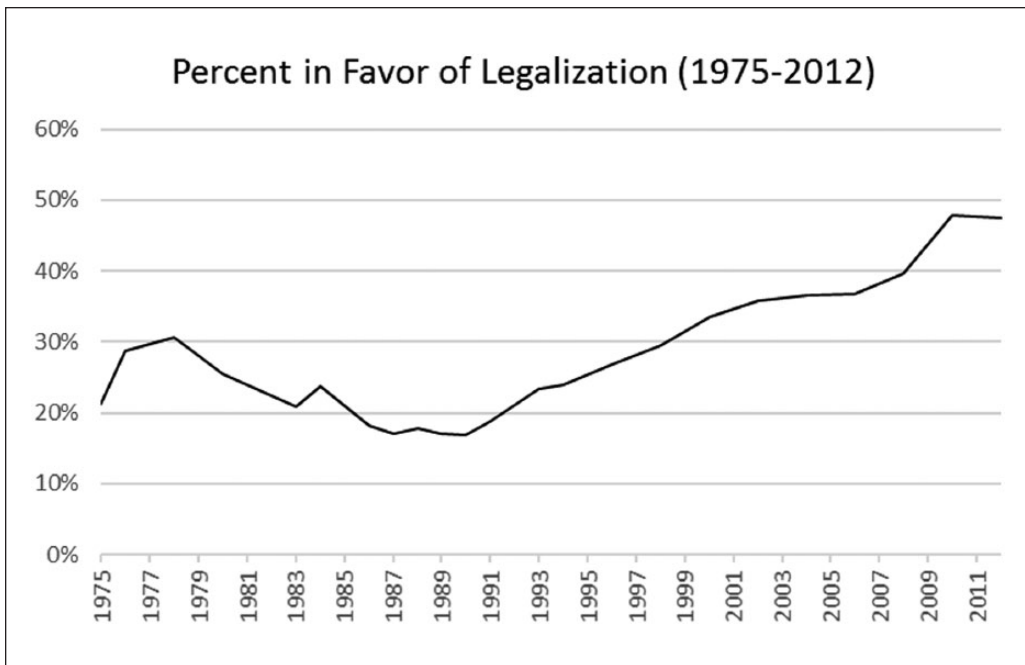
## Findings

Table 1 provides the descriptive statistics for all variables. These data indicate that 27% of respondents indicated that they believe that marijuana should be legalized (for the entire sample across time). Forty-five percent of the sample was male and 55% female, 81% was White, 13% African American, and 6% was identified as Other races. Married persons made up 60% of the sample, and 21% possessed a bachelor's degree or more. Fifty-seven percent of the sample was of protestant religion, 31% identified as having other religions, and 11% indicated that they did not identify with any religion. Those with a conservative political ideology make up 35% of the sample, and the remaining 65% identified as either liberal or moderate. These data also indicate that respondents watch an average of 2.75 hr of television per day, and the average frequency of reading the newspaper is a few times per week. Finally, on average, the sample possessed only some confidence in the press, television, and the executive branch of government.

**Table 1.** Descriptive Statistics for All Variables Valid ( $N = 28,809$ ).

	<i>M</i>	<i>SD</i>	Range	Valid <i>n</i>
Marijuana should be made legal	0.27	0.44	1	31,211
Frequency of reading the newspaper	3 (Mode)	0.75	2	34,104
Hours spent watching TV daily	2.75	1.65	6	34,117
Confidence in television	2 (Mode)	0.65	2	35,170
Confidence in the press	2 (Mode)	0.67	2	34,979
Confidence in the executive branch	2 (Mode)	0.67	2	34,706
Married	0.6	0.49	1	52,450
Children	0.72	0.45	1	52,305
Birth year	1949	19.66	106	52,303
White	0.81	0.39	1	52,461
Other races	0.06	0.23	1	52,461
African American	0.13		1	52,461
Male	0.45	0.5	1	52,461
Bachelor's degree or more	0.21	0.41	1	52,342
Protestant	0.57	0.49	1	52,231
No religion	0.11	0.31	1	52,231
Other religions	0.31		1	52,231
Conservative	0.35	0.48	1	46,539
Liberal and moderate	0.65	0.48	1	46,539
Southern resident	0.35	0.48	1	52,461
Pacific resident	0.13	0.34	1	52,461
Other regions	0.52		1	52,461
Ford (1975-1976)	0.06	0.24	1	52,461
Carter (1977-1980)	0.09	0.29	1	52,461
Reagan (1981-1988)	0.21	0.41	1	52,461
Bush (1989-1992)	0.08	0.28	1	52,461
Clinton (1993-2000)	0.25	0.43	1	52,461
Bush Jr. (2002-2008)	0.23	0.42	1	52,461
Obama (2010)	0.08	0.27	1	52,461

Figure 1 illustrates attitudes about marijuana legalization over the time period of analysis (1975-2012). These data reflect a peak in favor of legalization in the late 1970s followed by a relatively consistent downward trend in favor for several years throughout the 1980s. Beginning in the early 1990s, the trend in favor toward legalization shifted yet again, and has risen to an all time high. The most recent years indicate that the increases in favor toward legalization may have plateaued at just shy of 50% of respondents favoring legalization of marijuana in 2012. In fact, other sources have found support for marijuana legalization today to be higher than any other point in time. In a 2015 Gallup Poll, it was found that 58% of Americans polled favored the legalization of marijuana, matching the previous peak of 58% in 2013 (Jones, 2015).

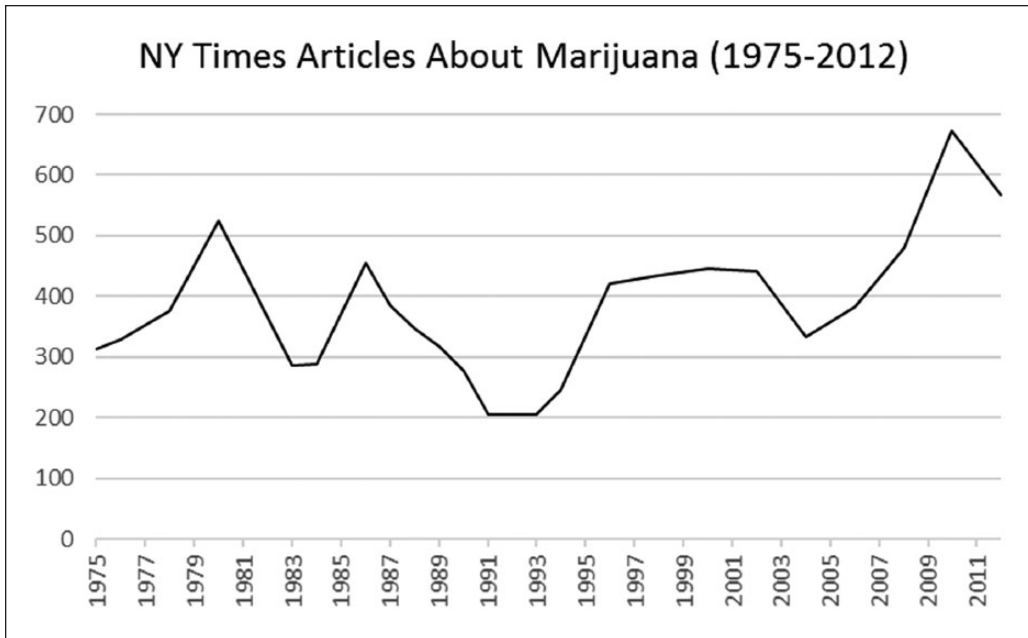


**Figure 1.** Percentage of Americans favoring and opposing the legalization of marijuana (1975-2012).  
Source. General Social Survey Cumulative file, 1975-2012.

Figure 2 illustrates the media attention toward marijuana in the *New York Times* (2016) from 1974 to 2012. Articles referring to marijuana do not drop below 200 in any year during the period of study. There also appears to be an overall turning point in the trajectory in the early 1990s. Specifically, the general downward trend in the frequency of articles begins to rise in approximately 1994. Unfortunately, these data could not be included in the multivariate model due to multicollinearity with the media exposure variables.

Multivariate logistic regression results are presented in Table 2. Models 1 through 4 each contain all of the sociodemographic control variables and applicable presidential term period control variables. Variance inflation factors were obtained for all models, the highest of which was 2.446; thus, multicollinearity is not present in the regression models. Model 1 includes all of the sociodemographic control variables. With a sample size of 28,809, this model accounts for approximately 18% of the variance in attitudes toward legalization.





**Figure 2.** Frequency of *New York Times* articles referring to Marijuana (1975-2012).

Source. *New York Times* online archives.

Model 2 introduces the independent media and confidence measures. Although the model as a whole accounts for about 19% of the variance in attitudes, the change in  $R^2$  from Model 1 to Model 2 is only about 1½%. Thus, the independent variables account for about 1½% of the variance in attitudes toward legalization over the entire time period (1975-2012). This model indicates that for every increase in the number of hours spent watching television per day there is a statistically significant increased odds of favoring legalization of about 4% when controlling for other factors. Furthermore, those with higher confidence in the executive branch have a decrease in odds of favoring legalization of about 25% per ordinal increase in confidence.

Because of the significant turning point in attitudes in 1991, Models 3 and 4 analyze prior and subsequent periods separately. These models indicate that although media exposure prior to 1991 is not a statistically significant predictor of favor toward legalization, both indicators for television and newspaper exposure are statistically significant in the 1991 and after period. Specifically, a 6% increase in the odds of favor of legalization is predicted for each increase in hours of television per day, and a 10% increased odds in favor is indicated for each increase in newspaper frequency. In addition, confidence in the press is a significant predictor of favor prior to 1991, but not in the subsequent sample. Prior to 1991, those with increased confidence in the press had 21% increased odds of favoring legalization. Finally, z-tests indicate that the relationship between media exposure and attitudes toward marijuana legalization is significantly different between the two periods. As such, these factors indicate that while confidence was previously an important predictor of attitudes, mere frequency of exposure is now more important.

Several of the sociodemographic control variables were also significant predictors of favor toward legalization of marijuana. Significant interaction was discovered between White respondents and those who lived in the southern region as well as between those who

**Table 2.** Binary Logistic Regression Results Predicting Favor of Legalization.

	Model 1	Model 2	Model 3	Model 4	z-test results
	1975-2012	1975-2012	1975-1990	1991-2012	Models 3 and 4
Frequency of reading the newspaper	—	1.041 (.03)	0.922 (.05)	1.101** (.04)	-2.73*
Hours spent watching TV daily	—	1.043** (.01)	0.998 (.02)	1.063*** (.02)	-2.20*
Confidence in television	—	0.998 (.04)	1.049 (.06)	0.980 (.05)	0.94
Confidence in the press	—	1.027 (.04)	1.213** (.06)	0.918 (.05)	3.90*
Confidence in the executive branch	—	0.750*** (.03)	0.717*** (.06)	0.776*** (.04)	-1.2
Birth year	1.018*** (.01)	1.018*** (.01)	1.027*** (.01)	1.013*** (.01)	3.61*
Married	0.926 (.06)	0.873 (.08)	1.134 (.13)	0.714** (.12)	4.31*
Have children	1.136** (.05)	1.031 (.07)	1.197 (.12)	0.879 (.07)	2.21*
White	0.970 (.06)	0.915 (.09)	0.689** (.14)	1.083 (.12)	-1.79
Other races	0.478** (.08)	0.420*** (.12)	0.319** (.35)	0.523*** (.14)	-1.18
Male	1.519*** (.04)	1.522*** (.04)	1.580*** (.07)	1.472*** (.05)	0.9
Bachelor's degree or more	1.427*** (.03)	1.514*** (.05)	1.907*** (.09)	1.324*** (.06)	3.40*
Protestant	0.820*** (.03)	0.765*** (.05)	0.772** (.08)	0.750*** (.06)	0.32
No religion	2.099*** (.05)	1.995*** (.07)	2.297*** (.12)	1.878*** (.08)	1.41
Conservative	0.549** (.03)	0.552** (.05)	0.609*** (.08)	0.517*** (.06)	1.69
Southern resident	0.708** (.07)	0.686** (.11)	0.576** (.20)	0.750* (.13)	0.3
Pacific resident	1.453*** (.05)	1.592*** (.06)	1.667*** (.10)	1.528*** (.08)	0.62
Ford (1975-1976)	1.412** (.06)	1.192* (.09)	1.716*** (.10)	—	—
Carter (1977-1980)	1.533*** (.05)	1.940*** (.08)	2.729*** (.09)	—	—
Reagan (1981-1988)	0.762** (.04)	0.774** (.07)	—	—	—
Bush (1989-1992)	0.626** (.06)	0.633*** (.09)	0.721** (.12)	0.710** (.13)	—
Clinton (1993-2000)	—	—	—	—	—
Bush (2002-2008)	1.321*** (.04)	1.350*** (.06)	—	1.401*** (.06)	—
Obama (2010-2012)	2.016*** (.05)	1.875*** (.08)	—	2.001*** (.08)	—
South and White interaction	1.313** (.08)	1.413** (.07)	—	1.389* (.15)	—
Married with children interaction	0.626*** (.60)	0.653*** (.10)	0.480*** (.16)	—	—
Nagelkerke Pseudo R <sup>2</sup>	0.177	0.193	0.203	0.177	—
Sample size	28,809	13,555	5,899	7,656	—

Note. Standard errors are in parenthesis; reference categories include the following: not married; African-American; female; less than bachelor's degree; other religions; liberal or moderate; other regions; Models 1, 2, and 4 Clinton's term; and Model 3 Reagan's term. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

are married and those with children. Southern residents have a decreased odds of favoring legalization when they are non-White. However, southern residents who are White have an increased odds of favoring legalization from 1975 to 2012 and after 1990. This interaction was not significant prior to 1991; however, Whites and southerners had an overall decreased odds of favoring legalization. Respondents who had children and were not married and had increased odds of favoring legalization; however, those with children who were married had a decrease in the odds of favoring legalization. This interaction was not significant in Model 4; however, marriage itself leads to decreased odds of about 29%. Finally, the z-test scores indicate that the effect of marriage and children does vary significantly between the two periods in Models 3 and 4.

Year of birth remains relatively consistent and positively associated with favoring marijuana legalization, in that the odds of favoring legalization increases by approximately 2% with each increase in birth year. However, the z-test scores indicate that this relationship does significantly vary between time periods. Furthermore, those possessing a bachelor's degree are significantly related to attitudes for marijuana legalization in all models. This relationship significantly changes from a 91% increase in odds compared with those with less education to only a 32% increase after 1990. Males remain stable in their increased odds of approximately 47% to 58% toward favoring legalization than females.

Protestants attitudes range from a decrease in odds from 18% to 25% from other religions depending on the period and controls. Those who are not affiliated with any religion are substantially more likely to support legalizing marijuana than those who identify with any religion and range from an 87% increase after 1990 to a 2 times increased odds before 1991. Conservatives odds of favoring legalization are decreased by approximately 39% to 45% when compared with liberals and moderates. Pacific resident's odds of supporting legalization are increased by 67% before 1991 and 53% after 1990. All of the presidential administration controls were significantly related to the respondent's attitudes toward marijuana legalization, and the Reagan and George H. W. Bush presidencies were the only terms indicative of lower odds of favoring marijuana than the Clinton administration, which is consistent with their stance on the drug issue.

## Discussion and Conclusion

This study sought to examine the relationship between media exposure and attitudes about the legalization of marijuana between 1975 and 2012. The previous literature would strongly suggest that the initial panic over marijuana in 1930s was socially constructed by the media and government influence on public opinion (Anslinger & Cooper, 1937; Armstrong & Parascandola, 1972; Becker, 1963; Carroll, 2004; Kalent, 1968). American society has come a long way since the Reefer Madness era, and media coverage about marijuana and drugs has changed significantly. Specifically, media content has shifted in recent decades to include more positive depictions of marijuana use compared with the horror stories of the 1930s (Stryker, 2003). Much of the positive attention has been related to increases in medicinal marijuana use (Vickovic & Fradella, 2011). As well, marijuana use is no longer exclusively associated with minority groups (Musgrave & Wilcox, 2013). Correspondingly, favor of marijuana legalization has increased substantially since 1991 and is related to media exposure.

Although media exposure is not significantly related to attitudes toward legalization prior to 1990, it has a significant positive relationship in the post 1990 period. The change in this relationship is consistent with changes in media attention to marijuana illustrated in Figure 2 between these time periods. Specifically, media exposure is not likely to influence attitudes about marijuana when there is little marijuana-related content. This also suggests that media exposure may influence attitudes rather than the opposite because the frequency of marijuana attention is important. This illustrates an important shift in the context of the marijuana issue and media coverage.

The positive relationship between media exposure and favor of legalization is consistent with prior research which indicates that there was a decline of negative drug coverage in the early 1990s, followed by an increase in positive media coverage of marijuana in the early 1990s (Gonzenbach, 1996; Stryker, 2003). According to Gonzenbach (1996), there was a plethora of negative coverage of drug issues during the 1980s; however, it "plummeted in the early part of 1991" (p. 94). Moreover, others have shown an increased trend in positive media coverage about marijuana during the mid-1990s (Stryker, 2003). This period also witnessed several legislative changes in some states such as decriminalization and legalization, which have been shown to

affect attitudes (Khatapoush & Hallfors, 2004). Thus, media content has shifted to include more positive representations of marijuana that may explain the positive relationship with favor toward legalization found here.

Changes in media coverage of marijuana may be related to increases in the use of medical marijuana. In fact, medical marijuana is said to have become a “highly salient issue” in the mid-1990s, especially with the passage of California’s Proposition 215 (Musgrave & Wilcox, 2013, p. 115). Although marijuana is said to have been reframed as a medical issue in the middle to late 1970s, the drug panic of the 1980s likely inhibited the popularity of medicinal marijuana use (Jacobs, 2006; McCarthy, 2004; Millhorn et al., 2009). Gerber (2004) has argued that marijuana is “the bedrock of the drug war” (p. 10). Because it is also the most commonly used illicit drug in the United States, it is probable that negative propaganda associated with drugs during the 1980s would affect opinions about legalization (Gonzenbach, 1992, 1996; Goode, 1990; Hawdon, 2001; Musgrave & Wilcox, 2013; Reinerman & Levine, 2004; Stryker, 2003).

Because numerous studies have identified a relationship between the president, the media, and public opinion, presidential politics may have some impact on both the media agenda and attitudes toward legalization of marijuana (Gonzenbach, 1992; Hawdon, 2001; Hill et al., 2012; Johnson et al., 2004; Oliver et al., 2011). Enigmatically, President Clinton famously admitted that he had previously smoked marijuana but did “not inhale” right around the period that favor toward legalization began the upward trend in 1992 (Ifill, 1992). This suggests that the presidential rhetoric may be related to public opinion about drugs, especially since favor of legalization was much lower during other anti-drug presidential terms. The relationship between confidence in the executive branch and attitudes toward marijuana support this theory as well. The negative relationship may reflect the idea that most citizens trust that the government is doing the right thing by criminalizing marijuana because it is harmful to protect the public.

The presidential relationship with the media and public opinion has been found to be a complex reciprocal relationship that differs between presidents (see, for example, Johnson et al., 2004; Oliver et al., 2011; Hill et al., 2012). Although multiplicative interaction was tested between the media and the presidential terms and confidence measures, no significant interaction was found. This may result from an inability to separate the time period from the president. Thus, it would not be conducive to the interaction of media and the president. Interestingly, the Clinton administration is said to have arrested twice as many marijuana offenders “than the seemingly draconian Richard Nixon,” and “waged a more intensive war on pot than any other presidency in history” (Gerber, 2004, p. 55). This is likely a measure of political survival to avoid the appearance of being soft on crime or drugs in our current punitive society after his prior admission of marijuana use (Gerber, 2004; Musto, 1999). Arresting a plethora of citizens for behavior that he publicly admitted to may have mixed effects on media content and opinions.

Education was a significant predictor of attitudes toward marijuana. This may be a reflection of the educated having greater knowledge about the realities of the marijuana problem (Hawdon, 2001; Nielsen & Bonn, 2008). However, the change in the odds of favoring legalization over time may indicate that those with lower levels of education are also becoming more aware of the realities of the situation as time goes on. The findings for religion are also consistent with prior studies. Moreover, because marijuana is often thought of as a recreational drug, it has been greatly stigmatized and may reflect a conflict with morals or social norms associated with the Protestant ethic which emphasizes “hard work, rationality, order, moderation, and future oriented planning” (Caulkins et al., 2012; Grinspoon, 1971, p. 333; Hodge et al., 2001; Merrill et al., 2005; Nielsen, 2010; Weber, 1958).

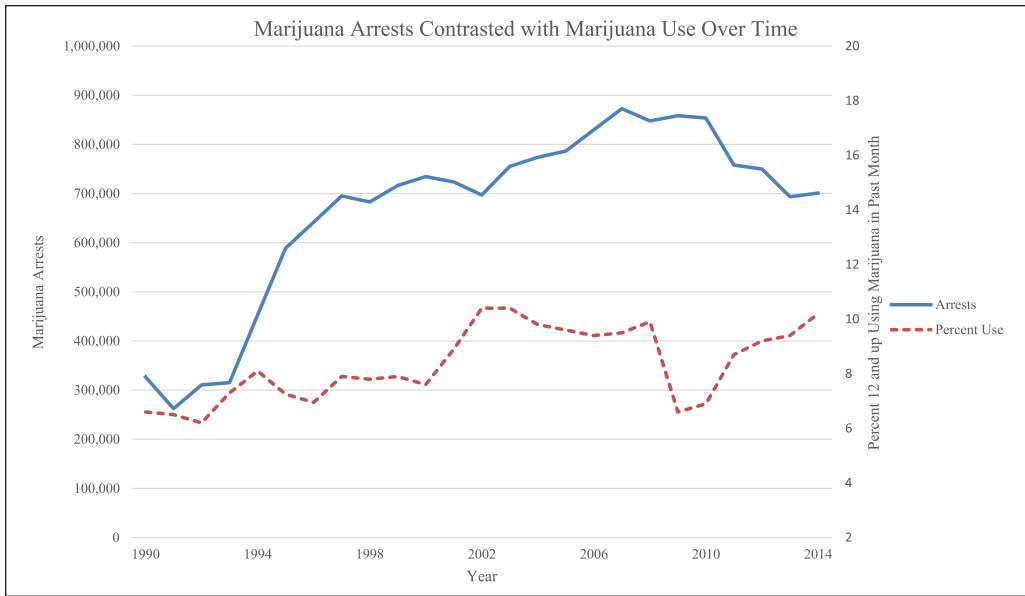
Prejudice may also play a part in the diverse attitudes toward marijuana over time. Prejudice may be present between generations in that alcohol has been the traditional intoxicant or drug of choice of the older generations, whereas marijuana is more commonly associated with younger

generations and minorities (Grinspoon, 1971). The significant positive relationship for year of birth is also consistent with prior research (Caulkins et al., 2012; Kandel et al., 2001; Keyes et al., 2011; Nielsen, 2010). Kappeler and colleagues (1993) indicated that one of the means of socially constructing crime myths is to associate the phenomenon, in this case marijuana use, with a minority of the population. In fact, there are those who would assert that the war on drugs was undertaken during the period where drug use was declining among the general population, but not in the minority populations (Tonry, 1995; Waquant, 2009). Historically, marijuana was associated with African Americans and Hispanics; however, marijuana use in recent decades has become much more “mainstream,” and its use intersects virtually all demographic categories (Faupel et al., 2010; Musgrave & Wilcox, 2013). These data, which indicate significant shifts in attitudes toward legalization among Whites and Southerners, are consistent with marijuana use no longer being exclusively associated with minorities and, therefore legislation against it, no longer a function of racial prejudice and a means to control or govern minorities (Alexander, 2012; Simon, 2007).

One could argue the findings of this study may be conducive to understanding the social deconstruction of the socially constructed panic about marijuana. The issue has evolved from the initial panic of the 1930s to a period where it is no longer seen as a menace to society and is being legalized in many states for both medical and recreational use (Szalavitz, 2012). Although for years the government relied on propaganda and scare tactics to deter individuals from using marijuana, the Internet age may have made that more difficult. However, with a strong anti-marijuana campaign, it is not unimaginable that these tactics (though less blatant than in the past) could once again be utilized, especially as political shifts in party and control occur over time. Several federal and state judges, including one Supreme Court justice, are not only supporting legalization but have admitted that they have used marijuana (Gerber, 2004; Labaton, 1989; Reichbach, 2012). President Obama has become the second president to admit to using marijuana as has indicated that “we’ve got bigger fish to fry” than marijuana smokers (Weiner, 2012, p. 1). Despite the fact that roughly 50% of Americans favor legalizing marijuana, it still remains illegal under federal law throughout the country (Newport, 2011). Bill Clinton, the president who did not inhale, and imprisoned more people for marijuana than any other president, has even “asserted that it was time for the nation to decriminalize marijuana” (Gerber, 2004, p. 54). Finally, Dr. Donald Tashkin, once a staunch opponent of marijuana use on the grounds it leads to lung cancer, has recently backed off his claims and asserts that moderate marijuana use does not appear to share the risk of lung cancer that cigarette smoking does (Tashkin, 2013).

Given vast differences in the historical accounts of marijuana through the various time periods, one might argue that this was a problem of the past. If marijuana were simply a problem of the past, then we would expect arrests to be down in this post 1990 era of increasingly favorable legalization attitudes. However, data indicate that use has fluctuated between about 6.5% of those aged 12+ years having used marijuana in the past 30 days and just more than 10% from 1990 through 2014 (U.S. Department of Health and Human Services, 2016). On the contrary, marijuana arrests have steadily increased since 1990, nearly tripling from 1990 to 2007, as seen in Figure 3 (see also Johnston, O’Malley, Bachman, & Schulenberg, 2013; King & Mauer, 2006; Kuehn, 2011; U.S. Department of Justice, 2016). Obviously the increases in marijuana arrests dwarf the increases in actual use, with the latter possibly tied to a decline in perceived risk of marijuana and increased favorable attitudes toward legalization as a result of positive media exposure (Khatapoush & Hallfors, 2004; Stryker, 2003; Terry-McElrath, Emery, Szczypka, & Johnson, 2011).

This study was limited in several aspects. For example, the indicators for media exposure simply gauged the frequency of one’s exposure to the newspaper and the television; however, the content of these exposures remains unknown. It is also not known the causal ordering of media exposure and attitudes toward marijuana. These data are compiled from repeated cross-sectional



**Figure 3.** Marijuana arrests and percent of those age 12+ using Marijuana in past 30 days (1990-2014). Source. Uniform Crime Reporting Program, 1990-2014; National Household Survey on Drug Use and Health, 1990-2014.

surveys not longitudinal panel or cohort surveys. There is also an inability to decompose age, period, and cohort effects regarding opinions toward marijuana legalization. The construction of the presidential indicators was very limited and future research should attempt to create better measures to test this relationship with the media and marijuana opinions. Finally, the dependent variable was a dichotomous dummy variable that allowed for no elaboration regarding the strength of one's opinion regarding the legalization of marijuana or why the respondent believed marijuana should be legal or illegal. Despite these limitations, this study extends the existing literature and provides a significant addition to the existing scholarly research into the relationship between media exposure, the social construction of marijuana as a social problem, and attitudes toward the legalization of marijuana.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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### Author Biographies

**Richard J. Stringer** is a PhD Candidate in Criminology and Criminal Justice at Old Dominion University in Norfolk, Virginia. His research and teaching interests include substance use, drug and alcohol policy, alcohol impaired driving, the media and public opinion, and social problems. His research has appeared in *Criminal Justice Policy Review*, *Journal of Drug Issues*, and *The Journal of Ethnicity and Criminal Justice*.

**Scott R. Maggard** is an Associate Professor in the Department of Sociology and Criminal Justice at Old Dominion University in Norfolk, Virginia. He received his PhD in Sociology from the University of Florida in 2006. His research and teaching interests include substance use, drug policy, racial disparities in the criminal justice system, and juvenile justice. Prior to his current position at Old Dominion University, Dr. Maggard was a Court Research Associate at the National Center for State Courts in Williamsburg, Virginia. His research has appeared in *Crime & Delinquency*, *Journal of Drug Issues*, *Deviant Behavior*, and *Justice Quarterly*.