Deviant Behavior

ISSN: 0163-9625 (Print) 1521-0456 (Online) Journal homepage: https://www.tandfonline.com/loi/udbh20

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To cite this article: Richard J. Stringer & Scott R. Maggard (2019): From "Just Say No" to "I Didn't Inhale" to We Have "Bigger Fish to Fry": The President, The Media, and Attitudes Toward Marijuana Legalization, Deviant Behavior, DOI: 10.1080/01639625.2019.1653483

To link to this article: https://doi.org/10.1080/01639625.2019.1653483

Published online: 14 Aug 2019.

DEVIANT BEHAVIOR
https://doi.org/10.1080/01639625.2019.1653483

Routledge
Taylor & Francis Group

From "Just Say No" to "I Didn't Inhale" to We Have "Bigger Fish to Fry": The President, The Media, and Attitudes Toward Marijuana Legalization

Richard J. Stringer[a] and Scott R. Maggard[b]

[a]Kennesaw State University, Kennesaw, GA, USA; [b]Old Dominion University, Norfolk, VA, USA

ABSTRACT

Public opinion concerning marijuana legalization has varied greatly over time. While prior research suggests presidential drug rhetoric is related to public opinions on drugs, the relationship between the sitting president and attitudes specifically toward marijuana has not been explored. This study utilized data from the General Social Survey and the American Presidency Project to examine the relationship between the president and Americans' attitudes toward marijuana legalization from 1975 through 2016. Findings indicate that confidence in the executive branch, fear of crime, and presidential drug rhetoric predict attitudes toward legalization despite controls for other factors such as estimated levels of marijuana use and arrests. These findings are discussed in the context of prior research that suggests presidential rhetoric, drug enforcement, and fear of crime may be related to American attitudes toward marijuana legalization.

ARTICLE HISTORY
Received 15 February 2019
Accepted 26 July 2019

Introduction

Attitudes toward the legalization of marijuana have varied greatly over time, and social realities are greatly influenced by the context in which one lives (see Berger and Luckmann 1966). While the extant literature has largely focused on individual-level predictors of attitudes toward marijuana legalization, differences between individuals fail to explain aggregate level shifts in public opinion across the U.S. Research also implies the U.S. president is able to influence public opinion about drugs, and some argue that "the war on drugs is a presidential construct" (Whitford and Yates 2009: 34). Therefore, this project aims to examine the relationship between presidential drug-related rhetoric and public opinion about marijuana legalization.

Public opinion about marijuana and marijuana legislation has been influenced by government propaganda since the onset of its federal criminalization the 1930s (Armstrong and Parascandola 1972; Musto 1999). Prior to this time period, marijuana was treated as a nuisance drug, was not perceived to be habit-forming, and government officials were focused on other drugs (Caroll 2004). This approach changed when Harry Anslinger, the head of the Federal Bureau of Narcotics, began to fabricate stories convincing the American people that marijuana was a very dangerous drug, leading to the passage of the Marihuana Tax Act of 1937 (Carroll 2004; Musto 1999). Although Anslinger was not president, he was a persuasive speaker and was regarded as the "nation's expert on drugs" (Carroll 2004: 65). This identity allowed him to act as a moral entrepreneur and influence public opinion (see Becker 1963), highlighting the importance of government rhetoric in shaping public opinions.

CONTACT Richard J. Stringer rstring7@kennesaw.edu Department of Sociology and Criminal Justice, Kennesaw State University, 402 Bartow Ave. MB #2204, Kennesaw, GA 30144, USA

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Though one of the earliest public figures to influence public attitudes about marijuana, Anslinger was not the only public opinion on the topic. Many conservative U.S. presidents have often engaged in anti-drug rhetoric that may influence public opinion as well. For example, President Reagan initiated a war on drugs in 1982 and is well known for the "Just Say No" campaign (Oliver 2003: 76; see also Beckett 1999). He is said to have "masterfully incited the public and helped create a moral panic" over drugs in the 1980s (Hawdon 2001:438). Both George H. W. Bush and George W. Bush also took strong anti-drug stances as well. Their approaches were less successful at influencing public opinion than Reagan's, a former actor known as "the Great Communicator" (Whitford and Yates 2009: 89).

While some presidents took very harsh stances toward drugs, liberal presidents did not focus on the same punitive War on Drugs policies, especially with regard to marijuana (see Musto 1999). Presidents Ford and Carter were both in favor of marijuana decriminalization (DiChiara and Galliher 1994). In fact, President Carter recommended legalizing marijuana and said that "penalties against the possession of a drug should not be more damaging to the individual than the drug itself" (Musto 1999: 261). Furthermore, President Clinton is widely known for admitting that he tried marijuana but "didn't inhale" (Ifill 1992: 1). Though he initially focused on matters other than drugs, political attack against his drug strategies led him to focus on illicit drugs in his second term (Musto 1999). President Obama, who is also said to have tried marijuana in his youth, argued that there are "bigger fish to fry" than marijuana users in states with legalized marijuana (Weiner 2012: 1).

While some empirical and theoretical research indicates the president has an impact on public opinion about drugs, the president's relationship with attitudes toward marijuana legalization has been largely overlooked in the extant literature. Given the government's historical role in marijuana prohibition, the diversity in presidential positions on the issue, and the recent the changes in favor of marijuana legalization (see Stringer and Maggard 2016), a relationship is hypothesized to exist between the presidential drug rhetoric and attitudes toward marijuana legalization. This project explores the relationship between presidential drug rhetoric and public opinion toward marijuana legalization from 1975 through 2016.

Literature review

Although the extant literature has not specifically examined the relationship between presidential rhetoric and attitudes toward marijuana legalization, research does indicate that presidential rhetoric and the presidential agenda is significantly related to attitudes about drugs in general (see, e.g., Gonzenbach 1992; Hawdon 2001; Hill, Oliver, and Marion 2012; Oliver, Hill, and Marion 2011). In fact, presidential rhetoric contributed to the drug panic of the 1980s when drug use was declining (Hawdon 2001). Furthermore, the amount of time spent discussing drugs in the president's State of the Union speech (SOTU) has been significantly linked to concern over illicit drugs (Oliver, Hill, and Marion 2011). Therefore, individual attitudes toward marijuana and drugs may be more heavily influenced by presidential rhetoric about drugs rather than objective factors like trends in drug use or the relative dangers of particular drugs.

Modern presidencies have increasingly utilized symbolic rhetoric in order to influence the public and the media on drugs (Whitford and Yates 2009). Because many people in the United States do not have very much direct knowledge about illicit drugs, they tend to get their information from the most common and easily accessed source around – the mass media (Gelders et al. 2009; Kappeler and Potter 2005). This is especially true for the generation born in and before the 1920s since they grew up during a time of great negativity toward drugs with little direct knowledge about them (Kandel et al. 2001; Musto 1999). Along with being a form of media, the government also has the ability to "control, direct, and mold" messages that are produced through other media outlets as well (Kappeler and Potter 2005: 10). Like the media, the president has the ability to influence public opinion on drugs by filling gaps in public knowledge about the issue and influencing social realities and attitude toward drugs (Kappeler and Potter 2005).

As the most powerful U.S. government leader, the president may have an equal or even greater influence than the media on public opinions of drugs (Johnson, Wanta, and Boudrea 2004). However, the extent to which the president is able to the influence the public varies greatly on the nature of the issue, the rhetorical ability of the president, the emphasis the president puts on an issue, and other real-world events (Johnson, Wanta, and Boudreau 2004). Drug related symbolic rhetoric is also more likely to be delivered by Republican presidents, and all presidents are more likely to speak on drugs when the crime rate is up (Oliver, Marion, and Hill 2016). Additionally, symbolic rhetoric is almost entirely abandoned for substantive rhetoric during election years (Oliver, Marion, and Hill 2016).

Prior research also illustrates a complex relationship between the president, the press, and public opinion. For example, while some argue the president has a great immediate influence on public opinion, others indicate a reciprocal relationship as the president follows the public and media agenda to a large degree (Gonzenbach 1992). A more recent study indicates that the president does not have a direct influence on public opinion but rather an indirect one that works through an administration's ability to influence the media which then influences the public (Hill, Oliver, and Marion 2012). More research is needed to fully understand this relationship. After Oliver and colleagues (2016) found suspicious results for general drug policies and presidential rhetoric, a focus on policies related to specific drugs was recommended. As such, the relationship between presidential rhetoric and public opinion about marijuana legalization is examined herein.

The extant literature on public opinion toward marijuana legalization has largely focused on individual-level predictors. Thus, while changing contexts across time and place have been largely overlooked, the literature has identified several sociodemographic factors associated with marijuana attitudes. Social institutions such as political opinions and religion are particularly important. Liberal political ideology is one of the strongest predictors of support for marijuana legalization (see Caulkins, Coulson, Farber, and Vesely 2012; Stringer and Maggard 2016). Even when differences between political parties emerge the results are said to be due to "a composition effect, with the true driver being political ideology" (Caulkins, Coulson, Farber, and Vesely 2012: 8). Religion also plays a significant role in an individual's attitude toward drugs. Research often finds a significant difference between those with no religion and Protestant religion with the former most likely to favor legalization (Caulkins, Coulson, Farber, and Vesely 2012; Hodge, Cardenas, and Montoya 2001; Hoffman and Miller 1997; Merrill, Folsom, and Christopherson 2005; Nielsen 2010).

The extant literature has also identified several differences in marijuana attitudes across the life course. Marriage and parenthood are strong predictors of negative attitudes toward marijuana legalization (Caulkins, Coulson, Farber, and Vesely 2012; Cubbins and Klepinger 2007; Silver 2010; Yamaguchi and Kandel 1985). In fact, Stringer and Maggard (2016) found significant interaction effects between marriage and parenthood with the least favor for legalization associated with married parents who are likely concerned that marijuana would become more accessible to children. Others have also found gender differences in attitudes about marijuana. Women are less likely to favor legalization, though this may be a product of socialization (see Jacobs 2006; Nielsen 2010; Agrawal and Lynskey 2007; Kerr et al. 2007; Reinzi et al. 1996). Conversely, research on racial attitudes toward marijuana has shown significant yet mixed results (Caulkins, Coulson, Farber, and Vesely 2012; Chen and Killeya-Jones 2006; Lambert et al. 2006). Although marijuana use is often associated with those with less education, those with higher educational levels are more likely to favor marijuana legalization (Goode 1990; Von Ours and Williams 2007). This may reflect a greater knowledge about the actual harms of marijuana among those with greater education (see Stringer and Maggard 2016).

One's year of birth, or birth cohort, is also related to attitudes toward the legalization of marijuana, suggesting that the context in which a person lives is an important predictor of attitudes toward marijuana (Nielsen 2010). Generally, the least favorable attitudes toward legalization are found among pre-baby boom cohorts (those born before 1955) (Caulkins, Coulson, Farber, and Vesely 2012; Nielsen 2010). Conversely, baby boomers who entered their adolescent years in the 1960s and 1970s during a time of greater drug use and tolerance are more likely to favor marijuana

legalization (Inciardi and McElrath 1992; Kandel et al. 2001; Musto 1999). Despite growing up during the Reagan and Bush years of moral panics, generations X and Y (those born from 1965–2000) show the greatest levels of support for legalization (Caulkins, Coulson, Farber, and Vesely 2012). However, Nielsen (2010) found no significant differences between baby boom and post baby boom cohorts. These findings suggest those who grow up in eras with more direct knowledge of marijuana may be less affected by political rhetoric and media propaganda.

Recent changes in marijuana policies across states seem to suggest that attitudes toward marijuana legalization varies across states; thus, important contextual effects may be overlooked by focusing on individual-level characteristics, as the prior literature has done. While residents of southern states are less likely to favor legalization (Stringer and Maggard 2016), the effect of other state-level factors remains unknown. The examination of the state context becomes increasingly important since many states have now legalized the use of medical *and* recreational marijuana. However, no research has examined the difference in attitudes across states that have legalized marijuana and those that have not.

Some research also suggests that government officials and the media play a role in opinions about marijuana policy. The media are able to influence public perceptions of marijuana because many have limited direct knowledge of marijuana and are important contextual factors. In fact, the "news media are a primary source of health information for the general public", and there is a strong relationship between the media and attitudes toward the legalization of marijuana (Stryker 2003:306). The media have played an important role in marijuana legislation and public opinion about marijuana for some time. In fact, Becker (1963) found a significant increase in antimarijuana media coverage immediately preceding federal marijuana prohibition in 1936, and much of this coverage was based on information provided by Harry Anslinger and the Federal Bureau of Narcotics (FBN). These articles created associations between marijuana and crime and were large fabrications provided by Anslinger and the FBN (Carroll 2004). In one article written by Anslinger himself, he described a story about a man in Florida that murdered his family with an ax after smoking marijuana (Anslinger and Cooper 1937). Research has shown that individual media exposure is related to attitudes, beliefs, and behaviors related to marijuana (Nielsen and Bonn 2008; Terry-McElrath, Sherry, Szczypka, and Johnston 2011; Stringer and Maggard 2016; Stryker 2003). Therefore, individual-level exposure to media and government rhetoric is important because those that have greater exposure to them (e.g., through television) are most likely to be influenced.

While media content and exposure are important predictors of attitudes about marijuana, some limited research implies that the president may be related to opinions about marijuana legalization. The literature on presidential rhetoric and opinions about drugs in general is fairly well developed (see, e.g., Oliver Marion, and Hill 2016); however, research on public opinion about marijuana legalization has shown limited exploration of this important contextual factor. For example, some researchers have used presidential terms to control for time and found that they are significant predictors of attitudes toward legalizing marijuana (Nielsen 2010; Stringer and Maggard 2016). Thus, it appears that the president in office is important, but these projects were not able to disentangle other period effects from those only related to the president by measuring the presidential terms. Individual-level confidence in the executive branch is also related to a decrease in favor of legalization of marijuana (Stringer and Maggard 2016). This indicates that not only is the president related to attitudes about marijuana but also that confidence in the president is also important. Since people are active consumers of information (see Gamson et al. 1992; Neilsen and Bonn 2008), individual attitudes may be less likely to believe anti-drug rhetoric from presidents in which they have little confidence. As such, messages from a president without public confidence may have effect on public opinion about marijuana.

In sum, substantial research has examined the relationship between individual-level factors and attitudes toward marijuana legalization. However, this literature has largely overlooked the social context across time and place, as well as the relationship between the president and opinions about marijuana legalization. This project aims to fill this void in the literature by testing the following hypotheses:

(1) Increases in presidential drug rhetoric will be related to decreased favor of marijuana legalization.
(2) Attitudes toward marijuana legalization will vary across social context while controlling for individual-level factors.
(3) The relationship between individual-level predictors and attitudes toward marijuana legalization will vary across time and place.

Method

Data

This study uses data from the General Social Survey (GSS) Cumulative Data file from 1972–2016 (Smith, Davern, Freese, and Hout 2017). This national, repeated cross-sectional survey was administered yearly until 1994 and has since been administered biannually in March and April. Opinions about marijuana legalization have been asked throughout the period of this study. While the survey used a full probability sample selection process from 1975 forward, data collection prior to 1975 did not and is excluded from this analysis. Thus, the sample is representative of the non-institutionalized English-speaking adult population in the United States from 1975–2016 (Smith, Davern, Freese, and Hout 2017).

Information from the American Presidency Project (2018), an electronic archive of presidential papers and speeches, was also incorporated into this project. This source of data provides information on presidential rhetoric on marijuana and drugs. The National Survey on Drug Use and Health as well as the previous version, the National Household Survey on Drug Use, provides data to estimate marijuana use (Center for Behavioral Health Statistics and Quality 2018). These data are collected using a national random probability sample of individuals 12 and over who reside in all 50 states and the District of Columbia (Center for Behavioral Health Statistics and Quality 2018). The Uniform Crime Reports (UCR) are also used to represent marijuana arrests (Federal Bureau of Investigation 2018). Data on states that have legalized medical and recreational marijuana use have been obtained from the National Organization for the Reform of Marijuana Laws (NORML) Foundation and ProCon.org (NORML Foundation 2017; ProCon 2017). Similar to other studies examining media attention to marijuana (see, e.g., Griffin, Fritsch, Woodard, and Mohn 2013), data is incorporated from the New York Times (2018) comprehensive online archive to examine media coverage of marijuana over time. These data were all merged into three data files that represent the individual, state, and time levels with appropriate measures in each file.

Measures

Descriptive statistics are presented in Table 1 for all variables. The dependent variable is a single dichotomous variable that measures favor of marijuana legalization with opposition toward legalization serving as the reference category. This measure was developed by asking survey respondents: "Do you think the use of marijuana should be made legal or not?" (Smith et al. 2017:304). The responses were binary (favor or oppose) and respondents who indicated they "do not know" (DK) or "not applicable" (NA) were coded as missing. These responses were removed from the sample and not imputed.

Several measures for presidential rhetoric are incorporated as independent variables. Since the number of words related to drugs in the President's State of the Union (SOTU) address are related to public opinion about illicit substances (see Hill, Oliver, and Marion 2012; Oliver, Hill, and Marion 2011), the number of words related to drugs in the president's state of union address are measured each year. The measure of the State of the Union address has temporal importance since it is given every year in late January or early February and data collections for

Table 1. Descriptive statistics.

	Mean	S.D.	Min	Max
Individual (N = 57,864)				
Marijuana Should be Legal	0.30	0.46	0	1
Confidence in the Executive Branch	0.68	0.47	0	1
Frequency of Reading the Newspaper	0.37	0.48	0	1
Hours spent watching TV daily	2.77	1.61	0	6
Confidence in Television	0.65	0.48	0	1
Confidence in the Press	0.66	0.47	0	1
Fear of Crime	0.39	0.49	0	1
Married	0.52	0.50	0	1
Children	0.72	0.45	0	1
Birth Year	1948.75	20.18	1886	1996
White	0.81	0.40	0	1
Other Races	0.05	0.23	0	1
African American	0.14	0.35	0	1
Male	0.44	0.50	0	1
Bachelor's Degree or More	0.22	0.41	0	1
Income > $25,000	0.52	0.50	0	1
Protestant	0.58	0.49	0	1
No Religion	0.12	0.32	0	1
Conservative	0.38	0.49	0	1
Liberal	0.33	0.49	0	1
State (N = 1065)				
Medical Marijuana Legal	0.08	0.27	0	1
Recreational Marijuana Legal	0.01	0.08	0	1
Mean Fear of Crime	0.40	0.14	0	1
Mean No Religion	0.11	0.09	0	0.67
Southern Region	0.33	0.47	0	1
Year (N = 28)				
SOTU Speech Illicit Drugs	87.81	112.36	0	461
Presidential Drug Documents	61.26	45.1	4	174
Presidential Marijuana Documents	3.56	3.12	0	10
New York Times Articles	398.37	154.67	204	942
Election Year	0.33	0.48	0	1
Republican President	0.59	0.50	0	1
Crack Drug Panic	0.22	0.42	0	1
Marijuana Arrest Rate	201.87	56.66	103.96	286.73
Marijuana Use	10.25	3.40	5.56	19.37

the GSS begins in March and April. As such, temporal validity is enhanced between the SOTU measure and the dependent variable. In order to normalize the distribution of this count variable (Skew = 1.89, Kurtosis = 3.9), the number of words about drugs in the SOTU was transformed using the natural log plus one (to account for zero values). This transformation was successful at normalizing the SOTU measure (Skewness = −0.52, Kurtosis = −1.39).

The SOTU address is only one of many opportunities for the president to influence public opinion and presidential documents and speeches other than the SOTU are also related to concerns over drugs (see Hawdon 2001; Marion and Oliver 2013). Therefore, the number of presidential documents that refer to drugs and marijuana each year in the public papers of the president archive also measures presidential drug rhetoric. These papers include other speeches, statements, remarks from news conferences, and other statements (American Presidency Project, 2018). Presidential documents for the 12-month period prior to March of the GSS data collection each year were included as frequencies. Presidential drug documents are divided into two continuous measures: one for documents on marijuana and another on all illicit drugs.

At the individual level, confidence in the executive branch is also assessed as a dichotomous measure which compares respondents with confidence to those with hardly any confidence as the reference category. This is relevant because persons do not passively absorb information (Gamson et al. 1992; Nielsen and Bonn 2008) and increases in confidence in the executive branch has a negative impact on favor of the legalization of marijuana (Stringer and Maggard 2016).

The mass media is the primary agent of dissemination of information for the president and media exposure and confidence in the media is related to attitudes toward marijuana legalization (see Stringer and Maggard 2016) and attitudes toward drug spending (Nielsen and Bonn 2008). As such, several measures of media exposure and confidence in the media are controlled at the individual level. Confidence in television and the press is measured as a dichotomous measure which compared those with confidence to those with hardly any confidence in these institutions as the reference category. Daily newspaper readership and the hours spent per day watching television are included as controls for media exposure (see Nielsen and Bonn 2008; Stringer and Maggard 2016). The frequency of reading the newspaper is a dichotomous variable which compares those who read the newspaper daily to those who read it less than daily as the reference category. Television exposure is operationalized as a scale variable which is truncated at six or more hours of television per day due to outliers.

Several aggregate level control variables have been included. Because drug policy is generally a Republican Party issue (Marion 1992, 1994; Scheingold 1995), a dichotomous variable is included to control for the political party of the current president, comparing Republican presidents to others as the reference category. Due to differences in presidential rhetoric in election years (see Marion and Oliver 2013), a binary measure compares election years to non-election years. A continuous measure for the estimated percent of the population that has used marijuana in the past 30 days controls for changes in marijuana use over time. Additionally, the marijuana arrest rate is operationalized as the frequency of marijuana arrests per 100,000 of the population. Since the crack-cocaine drug panic of the late 1980s was a unique period of heightened concern about drugs (see Reinarman and Levine 1997), a dichotomous measure controls for this period (1986–1991). This start of this period is operationalized as 1986 because several sources indicate that the "crack scare began in 1986" (Reinarman and Levine 1997: 49; Goode and Ben-Yehuda 2009; Inciardi 2008). The end of the crack panic is 1991 because by mid-1990 very few (only 8% of Americans) considered drugs to be the most important issue facing the nation (Gallup 1991) and "the moral panic died" by 1991 (Hawdon 2001:432). Medical and recreational marijuana state laws were dichotomously measured at the state level with no legal medical or recreational use laws as the reference category. Because varying media coverage of marijuana may also be related to attitudes toward marijuana (see Hill, Oliver, and Marion 2011; Stryker 2003), it is also controlled with a continuous measure of the number of articles in the New York Times that refer to marijuana each year (see also Gonzebach 1992).

Several individual level sociodemographic characteristics identified by prior research as predictors of attitudes toward the legalization of marijuana are controlled (see Caulkins, Coulson, Farber, and Vesely 2012; Nielsen 2010; and Stringer and Maggard 2016). The respondent's year of birth is included as a continuous measure (see Nielsen 2010). Ideally, income would be a continuous measure as well, however, the GSS truncates the measure at $25,000. Therefore, income is operationalized as a binary response that compares respondent whose income is greater than $25,000 to those with lower incomes as the referent. Several other dichotomous measures also control for important sociodemographic factors including race, gender, religion, marital status, having children, political affiliation, education, and fear of crime. Fear of crime is operationalized as a dichotomous measure similar to Nielsen and Bonn (2008). This measure compares respondents who are afraid to walk at night to those who are not afraid as the reference category. The fear of crime measure was elicited by asking respondents: "Is there any area right around here – that is, within a mile – where you would be afraid to walk alone at night?" (Smith et al. 2017: 497). Race is operationalized with three binary measures of Caucasian, African American, and Other. Caucasian was omitted from the analysis as the reference category. Religion includes binary measures of no religion and protestant religion compared to other religions as the reference category. Education is measured dichotomously as those with a bachelor's degree or more compared to those with less education. Other dummy variables include male, married, children, and conservative with reference categories of female, not married, no children, and liberal or moderate, respectively.

Multilevel modeling

While the extant literature on attitudes toward marijuana legalization has focused almost exclusively on individual-level analysis, this project provides a substantial addition to the literature by examining the data as they are in the real world (nested within the context of the state and time period). Thus, multilevel modeling was used to contemporaneously assess individual-level factors, state-level contextual factors, and aggregate factors that vary across time. A three-level model was used to nest individual GSS survey respondents (level 1) within states (level 2) and time (level 3). Due to the dichotomous construction of the dependent variable, Bernoulli non-linear analysis (the multilevel equivalent of logistic regression) was used for the multivariate analysis. These data were weighted by the GSS weight WTSSALL to account for non-response and to control for the number of adults living within the households surveyed (Smith, Davern, Freese, and Hout 2017).

These data were subject to various assessments to assure proper specification. Prior to multilevel analysis, variance inflation factors from a fixed effects regression model were used to assess multicollinearity at level one. Additionally, correlations matrices were assessed at level 2 and 3, and standard errors were copiously examined across multilevel analyses to check for cross-level and level two collinearity (Raudenbush and Bryk 2002). No collinearity was found in these models. An assessment of the statistical significance ($P < .001$) of the chi-squared tests for clustering indicates that a statistically significant amount of clustering is present at both level two and three (Raudenbush and Bryk 2002). Therefore, the results significantly differ from a single level-fixed effects binary logistic regression analysis, indicating multilevel modeling is appropriate for these data. Level one and two vectors have been centered around the grand mean as there is no need to utilize group-mean centering (see Enders and Tofighi 2007). Level three-parameter estimates are produced from un-centered measures.

The results of these analyses are presented as mixed-effects models. Specifically, while all of the intercepts remain set at random in order to allow them to vary across level two and three clusters, some measures are presented with a fixed slope while others are set to random and allowed to vary across state and year. The initial determination of random effects is based on statistically significant *p*-values and reliability estimates (Raudenbush and Bryk 2002). However, because random effects may not fit within a predefined statistical distribution (Heagerty and Zeger 2000), which can lead to assumption violations and issues with the validity of the *p*-value, confidence intervals, and normality plots are also used to determine if random effects are appropriate for each measure. Therefore, measures with a significant *p*-value, that appeared normally distributed, were reliable, and have a 95% confidence interval above zero vary randomly[1] Those that did not meet this criteria are fixed in the models presented. Finally, contextual effects models are assessed by aggregating the mean of the individual level dichotomous measures to the state level (see Raudenbush and Byrk 2002; Sampson, Raudenbush, and Earls 1997). Fear of crime and no religion were the only factors with significant contextual effects across states.

To reduce sampling bias due to non-responsivity in these survey data, multiple imputation methods were employed in order to replace those data with missing values with a statistically predicted value based upon the complete data. This method is generally considered superior to other methods such as mean replacement and list-wise deletion, which can introduce sampling bias due to non-responsiveness (Allison 2001). Constraints were also implemented to restrict the imputations to integers within the range of the original data. The 10 imputation files were then analyzed separately, and the parameter estimates and standard errors presented were averaged across all files (Raudenbush and Bryk 2002). All Level 1 independent and control variables were used as predictors for the imputation of the missing data.

[1]Individual measures for African American, other races, conservative, birth year, confidence in the press, confidence in the newspaper, confidence in television, television use, and fear of crime were found to significantly vary across state, and therefore had random slopes. Furthermore, slopes for African American, conservative, education at the bachelor's degree or more, Protestant religion, birth year, and confidence in the executive branch of government were also allowed to vary across year.

Findings

Figure 1 presents the change in the percentage of Americans that favor and oppose the legalization of marijuana in the United States from 1975 through 2016. This figure illustrates a distinct upward trajectory in favor since the early 1990s. A consistent decline in opposition is also evident. Interestingly, for the first time since 1975, the two lines crossed in 2014. Therefore, as of 2014 more Americans favor the legalization of marijuana than oppose it.

Table 2 presents results from the multilevel models predicting favor toward the legalization of marijuana. Model 1 presents the level three measures of presidential drug rhetoric. Model 2 introduces individual level control measures. Model 3 presents the presidential measures while controlling for other factors at both the individual and state level. The use of a dichotomous dependent variable and the Bernoulli model prevents the estimation of a variance component at level one due to the constant variance between the two categories. Therefore, the intra-class correlation coefficient and estimated explained variance at level one are not presented for these models. However, the r-squared estimates from Table 2 show an explanation of up to 60% of the variance across states (level 2) and 73% of the variance over time (level 3).

The findings from Table 2 suggest that the presidential agenda is related to opinions about marijuana legalization after controlling for other factors. Specifically, each annual percent increase in SOTU words about drugs predicts a decreased odds of favoring legalization of about 6% in models 2 and 3 after controlling for other factors. The number of presidential documents is also an important predictor of marijuana legalization attitudes and leads to a small (0.4%) decrease in favor of legalization per unit increase in drug documents. Individual-level confidence in the executive branch predicts a statistically significant decreased odds of favoring legalization of about 29% compared to persons with hardly any confidence in the executive branch while controlling for other factors.

Table 3 introduces additional level 3 control measures for objective factors including marijuana arrests and use, the crack-cocaine epidemic of the 1980s, election years, republican presidents, and cross-level interactions. These models are able to explain an additional 17% of the variance in favor of marijuana legalization at level 3, resulting in a total of 90% of the variance explained over time. Model 1 presents the additional control measures over time, and even after controlling for these additional time-varying covariates. The SOTU speeches about illicit substances and presidential drug documents remain significant predictors of attitudes toward marijuana legalization.

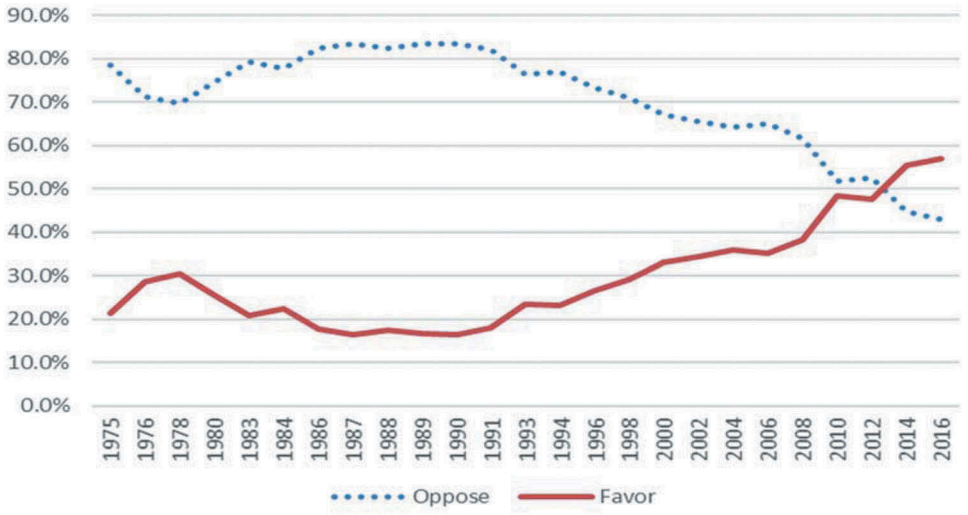

Figure 1. Americans favoring and opposing the legalization of Marijuana (1975–2016).

Table 2. Bernoulli multilevel analysis predicting favor of Marijuana Legalization.

	Model I	Model II	Model III
Individual (Level 1) N = 57,864			
Confidence in the Executive Branch	-	0.708*** (.042)	0.708*** (.043)
Confidence in the Press	-	1.029 (.022)	1.027 (.022)
Confidence in Television	-	1.032*** (.028)	0.948 (.028)
Frequency of Reading the Newspaper	-	1.033 (.001)	1.030 (.028)
Hours spent watching TV daily	-	1.032*** (.008)	1.032*** (.008)
Fear of Crime	-	0.920** (.027)	0.909*** (.027)
Birth Year	-	1.021*** (.001)	1.021*** (.001)
Income Greater than 25,000	-	1.105*** (.028)	1.105*** (.028)
African American	-	0.959 (.052)	0.959 (.052)
Other Races	-	0.482*** (.065)	0.482*** (.065)
Male	-	1.525*** (.024)	1.525*** (.024)
Bachelor's Degree or More	-	1.428*** (.046)	1.428*** (.046)
Protestant	-	0.833*** (.034)	0.860*** (.034)
No Religion	-	2.282*** (.038)	2.257*** (.038)
Conservative	-	0.578*** (.044)	0.578*** (.044)
Married	-	0.756*** (.046)	0.759*** (.046)
Have Children	-	1.022 (.036)	1.022 (.036)
Married with Children Interaction	-	0.784*** (.055)	0.786*** (.055)
Year	-	1.028*** (.003)	1.023*** (.003)
State (Level 2) N = 1065			
Medical Marijuana Legal	-	-	1.033 (.060)
Recreational Marijuana Legal	-	-	1.131 (.195)
Mean Fear of Crime	-	-	1.60** (.153)
Mean No Religion	-	-	3.747*** (.255)
Southern Region	-	-	0.939 (.035)
Year (Level 3) N = 28			
SOTU Speech Illicit Drugs	0.921 (.046)	0.944** (.019)	0.941*** (.009)
Presidential Drug Documents	1.001 (.002)	0.996*** (.001)	0.996*** (.001)
Presidential Marijuana Documents	0.941 (.034)	1.001 (.016)	0.996 (.006)
Level 2 R-Squared	-	0.47	0.59
Level 3 R-Squared	0.36	0.70	0.73

*p < .05, **p < .01, ***p < .001; Standard Errors are in Parenthesis.

Several of the time-varying factors are also significant predictors of favor toward legalization of marijuana. For example, during the crack-cocaine drug panic of the 1980s, there is a decreased odds of favoring legalization of about 27% compared to the other time periods. For every percent increase in aggregate marijuana use, the models predict a five percent increased odds of favoring marijuana legalization. Marijuana arrests are also significant predictors of marijuana attitudes and each increase in marijuana arrest rate leads to a small (0.2%) increased odds of favoring legalization. The parameter estimates also indicate a significant increase in favor of legalization during election years and when there are greater numbers of New York Times articles related to marijuana.

Although the main effects of a republican president in office did not achieve statistical significance, it appears that the political party of the current president may interact with individual-level confidence in the executive branch. As such, the second model in Table 3 examines a cross-level interaction between confidence in the executive branch and a republican president in office. Specifically, the model illustrates that when a Republican president is in office, each increase in confidence leads to decreased odds of favoring legalization of approximately 36%. However, when a Democratic president is in office the decreased odds of favoring legalization is reduced to 24%.

The models also reveal some noteworthy results among predictors at the state level. These results reveal the importance of assessing context in relation to individual attitudes toward marijuana legalization. Specifically, aggregate levels of fear of crime and no religion were important predictors of favor of legalization at the state level while controlling for individual-level fear of crime and no religion. While it varies somewhat across the models, the contextual effect fear of crime is positively related to attitudes toward marijuana legalization, demonstrating an increased odds of favoring legalization of about 52% per unit increase in mean fear of crime at the state level in model 1. In

Table 3. Bernoulli multilevel analysis predicting favor of Marijuana Legalization.

	Model I	Model II
Individual (Level 1) N = 57,864		
Confidence in the Executive Branch	0.709*** (.041)	0.763*** (.051)
Executive Confidence x Republican President	-	0.875** (.064)
Confidence in the Press	1.027 (.022)	1.027 (.022)
Confidence in Television	0.948 (.028)	0.948 (.028)
Frequency of Reading the Newspaper	1.030 (.028)	1.030 (.028)
Hours spent watching TV daily	1.032*** (.008)	1.032*** (.008)
Fear of Crime	0.909*** (.028)	0.909*** (.028)
Birth Year	1.021*** (.001)	1.021*** (.001)
Income Greater than 25,000	1.104*** (.028)	1.104*** (.028)
African American	0.959 (.052)	0.959 (.052)
Other Races	0.482*** (.065)	0.482*** (.065)
Male	1.525*** (.024)	1.525*** (.024)
Bachelor's Degree or More	1.432*** (.046)	1.432*** (.046)
Protestant	0.857*** (.034)	0.857*** (.034)
No Religion	2.258*** (.038)	2.258*** (.038)
Conservative	0.576*** (.044)	0.576*** (.044)
Married	0.759*** (.046)	0.759*** (.046)
Have Children	1.023 (.036)	1.023 (.036)
Married x Children Interaction	0.785*** (.055)	0.785*** (.055)
Year	1.006* (.003)	1.010*** (.003)
State (Level 2) N = 1065		
Medical Marijuana Legal	1.022 (.054)	1.017 (.054)
Recreational Marijuana Legal	1.162 (.183)	1.183 (.183)
Mean Fear of Crime	1.520** (.143)	1.428* (.145)
Mean No Religion	2.596*** (.246)	2.445*** (.246)
Southern Region	0.919* (.033)	0.919* (.033)
Year (Level 3) N = 28		
SOTU Speech Illicit Drugs	0.958*** (.012)	0.959*** (.011)
Presidential Drug Documents	0.998*** (.001)	0.997*** (.001)
Presidential Marijuana Documents	1.004 (.008)	1.017 (.009)
Crack Drug Panic	0.771*** (.073)	0.779*** (.071)
New York Times Articles on Marijuana	1.001* (.000)	1.001* (.000)
Marijuana Use	1.027** (.009)	1.030*** (.008)
Marijuana Arrests	1.002*** (.001)	1.002*** (.001)
Election Year	1.079* (.035)	1.079* (.035)
Republican President	0.993 (.042)	0.939 (.044)
Level 2 R-Squared	0.59	0.59
Level 3 R-Squared	0.90	0.90

*p < .05, **p < .01, ***p < .001; Standard Errors are in Parenthesis.

other words, if two persons with the same individual level fear of crime are located in two different states, the respondent in the state with higher mean fear of crime will have a 52% increased odds of favoring legalization per unit increase in the mean fear of crime compared to the individual in the state with lower mean fear of crime. The same can be said for the 2.5 times increased odds of favoring legalization for mean non-religious adherents. The differences between states can also be calculated by summing the level 1 (within state effects) and the level 2 (contextual effects) coefficients (see Raudenbush and Bryk 2002). While these contextual factors are important, respondents in states with legalized recreational and medical marijuana do not appear to significantly differ from those in states without legalized marijuana. Conversely, residents of southern states have a significant decreased odds of favoring marijuana of about 8% compared to residents of other stats.

Discussion

This project assesses the relationship between presidential drug rhetoric and public opinion about marijuana legalization from 1975 through 2016. Prior studies suggest that presidential rhetoric can influence public opinion about illicit drugs (see, e.g., Hill, Oliver, and Marion 2012; Oliver, Hill, and

Marion 2011; Oliver, Marion, and Hill 2016); however, the extant literature has not focused specifically on the relationship between the president and attitudes toward marijuana legalization. While attitudes toward legalization of marijuana have varied greatly over time, so has presidential rhetoric about marijuana and drugs. The lowest support for legalization is consistently found during President Reagan's Just Say No era. However, beginning around the election of President Clinton, a steady increase in attitudes favoring legalization, as illustrated in Figure 1, is observed. This project supports the hypothesis that presidential drug rhetoric is related to public opinion about drugs, and more specifically, about marijuana.

Confidence in the executive branch is a reliable predictor of favorable attitudes toward marijuana legalization which suggests that confidence in the president may be related to opinions about marijuana. These findings are consistent with Stringer and Maggard's (2016) findings that those with more confidence in the executive branch are less likely to approve of marijuana legalization. As noted earlier, confidence is important because individuals do not passively absorb information (Gamson et al. 1992; Nielsen and Bonn 2008). As such, when a respondent has little confidence in a source of information, such as the president, it will be less likely to influence their opinion (see Stringer and Maggard 2016). This is interesting and should be further explored in future research.

The interaction of confidence in the executive branch with a Republican president in office also adds a noteworthy nuance to the confidence in the executive branch and favor of marijuana legalization relationship. This is not unforeseen since illicit drugs are largely a republican issue (Marion 1992, 1994), and most of the discussion about illicit drugs in the SOTU addresses were made by Republican presidents. This is not to say that democratic presidents do not speak about drugs, because President Clinton did so on several occasions (see also Whitford and Yates 2009), but rather Clinton's anti-drug rhetoric may have resulted from political attacks when running for re-election (Gerber 2004; Musto 1999) since it is very dangerous for a politician to be perceived as soft on drugs or crime (Beckett 1999). In fact, crime and drug policies are rarely subjected to political debates between parties because there are few differences between parties on the crime issue (Currie 2009). However, those most confident in a republican president are also least likely to approve of marijuana legalization.

The findings for the discussion of other illicit drugs in the SOTU addresses are similar to other findings for public concern about illicit drugs (Hill, Oliver, and Marion 2012; Oliver, Hill, and Marion 2011). This consistency suggests that the presidential agenda is related to public opinion about marijuana in a similar manner as other illicit drugs. The significance of the SOTU measure throughout the analyses suggests that the quantitative number of words is an important predictor of attitudes toward marijuana legalization despite controls for individual differences (Caukins et al. 2012; Nielsen 2010; Stringer and Maggard 2016) and other objective factors such as marijuana use and arrests (see Johnson, Wanta, and Boudreau 2004). The findings for election years are also consistent with prior research suggesting that presidents may abandon symbolic rhetoric (e.g., drug rhetoric) in election years (see Oliver, Marion, and Hill 2016) leading to decreases in anti-drug attitudes and opposition to marijuana legalization.

The impact of the 1980s drug panic surrounding crack cocaine is particularly intriguing in light of the assertion that much of the panic was the result of both media and government discourse (Reinarman and Levine 1997). In fact, Hawdon (2001) argues that President Regan created the crack panic with anti-drug rhetoric. As such, the findings suggest the Reagan anti-drug rhetoric and the resulting drug panic over crack may have also influenced public opinions about marijuana legalization. Although the crack panic was geared toward crack-cocaine, marijuana attitudes would likely be subsumed within symbolic presidential rhetoric regarding a war on drugs as a result of discourse identifying marijuana as a gateway to other drugs like crack (see Kandel 2002).

While the President's SOTU speech is a reliable predictor of attitudes toward legalization when controlling for other factors, the total number of presidential documents on drugs is also influential in several models. This is consistent with other prior studies that have related presidential documents on drugs to public concern about drugs (see Hawdon 2001; Marion and Oliver 2013). Given

limitations on time, presidents may confine the SOTU to topics they see as most important (Oliver, Hill, and Marion 2011), and they may be likely to omit topics from the SOTU speech that they find less important for their agenda or for which they already have support. Therefore, presidential documents may also be a good measure of an administration's policies and the amount of time they are dedicating to drugs issues in their agenda. As such, the overall presidential agenda on drugs appears to be an important predictor of public opinion on marijuana.

Although the total number of presidential documents on drugs is significantly related to attitudes about marijuana legalization, the number of presidential documents that are related specifically to marijuana do not appear as important. Marijuana may be viewed somewhat differently than other drugs both in the media and by presidents. For example, Stryker (2003) indicates that in recent decades there has been an increase in positive media coverage of marijuana. Thus, it may become important to distinguish the positive coverage of marijuana from the negative. The same can apply to presidential documents on marijuana as some material may be more positive or supportive of rehabilitation while others may be more negative or punitive. While no prior research has specifically analyzed the content of presidential documents on marijuana, Hawdon (2001) did so for presidential drug documents and found that they vary according to whether they are collective/proactive, individual/reactive, punitive, and rehabilitative arguments. As such, the insignificance of the presidential marijuana documents may result from diverse qualitative content that may mask the quantitative effects. Furthermore, Table 1 indicates there were relatively few presidential documents about marijuana each year (min = 0, max = 10, mean = 3) which may have resulted in little explanatory power of the marijuana documents in the models. Also, compared to presidential drug documents (min = 4, max = 174, mean = 61), it is apparent that presidential agendas appear more focused on overall illicit drugs rather than on marijuana specifically.

Objective events, such as marijuana use, are important for several reasons. The positive influence of past marijuana use on favorable marijuana attitudes is consistent with the idea that those with more direct knowledge about drugs will have less animosity toward them (Kandel et al. 2001; Musto 1999). This assumes those with prior marijuana use have some knowledge of the drug and its effects. In fact, marijuana users are also more likely to support legalization of marijuana at the individual level as well (Trevino and Richard 2002). Additionally, increases in direct knowledge of marijuana may reduce the influence that media and government sources have on public opinion (see Gelders et al. 2009; Kappeler and Potter 2005), a finding that is also consistent with the relationship between higher education (see Stringer and Maggard 2016) and younger birth cohorts favoring legalization (see also Caulkins, Coulson, Farber, and Vesely 2012; Nielsen 2010). Enigmatically, Reagan's war on drugs began while drug use was declining nationwide (Tonry 1995; Waquant 2009), and recent increases in favorable attitudes toward marijuana legalization are not related to increases in the use of the drug. Thus, objective factors such as increases in aggregate marijuana use do not appear to be the driving force behind public, media, and government concerns about marijuana and antagonism toward legalization.

The primary goal of this project was to examine the relationship between presidential drug rhetoric and attitudes toward legalization of marijuana. However, the secondary hypothesis examined overlooked contextual effects across states. Additionally, while prior research indicates that religion is an important individual-level predictor of attitudes toward legalization is several studies (Hodge, Cardenas, and Montoya 2001; Merrill, Folsom, and Christopherson 2005; Caulkins, Coulson, Farber, and Vesely 2012; Hoffmann and Miller 1997; Nielsen 2010; Stringer and Maggard 2016), this project illustrates that religion is more important than the prior research has indicated and that aggregate state-level religious composition is important beyond just the individual level. Aggregate religious beliefs have not been explored within the marijuana literature; however, studies that examine alcohol prohibition at the county level indicate that the religious composition of a county is the strongest predictor of prohibition against alcohol (Frendreis and Tatalovich 2010). Thus, aggregate level religious beliefs are important predictors of substance abuse policies.

Despite the lack of attention to the fear of crime within the marijuana legalization literature, fear of crime was prominent at both the individual level and at the state level. These findings are not surprising given that "fear of crime is a driving force" societal definitions of crime (Hagan 2012: 137). Prior research has also linked the fear of crime to more favorable attitudes toward punitive policies (see Dowler 2003; Johnson 2009), and few would be likely to view legalizing marijuana as a punitive policy. Therefore, the findings allude that antagonism toward marijuana legalization by those most fearful of crime may reflect punitive sentiments at the individual level.

Although individual-level fear of crime is consistent with punitiveness, fear of crime at the state level was just the opposite. This contextual effect implies that there may be some aggregate level opposition to punitive marijuana policies. Correspondingly, the positive relationship between marijuana arrests and favorable attitudes toward marijuana legalization is also indicative of some aggregate level antagonism toward punishment of marijuana offenders. This is particularly intriguing since presidential punitive statements have also been shown to increase punitive sentiments within society (Ramirez 2013), the president is more likely to speak about drugs when the crime rate is up (Oliver, Marion, and Hill 2016), symbolic political rhetoric is often based on the fear of crime (see Newburn and Jones 2005; Oliver 2003; Whitford and Yates 2003), and drugs are often linked to crime. However, since presidential rhetoric was measured and held constant within these analyses, social punitiveness toward marijuana and increased aggregate fear of crime may actually lead to increased support for legalization. It is possible that some aggregate portions of society have begun to question the legitimacy of the rhetoric about fear of crime and drugs at least with regard to marijuana. There is little doubt that fear of crime plays an important role in public opinion about marijuana, drugs, and presidential rhetoric; however, it is also evident that more research is needed in this vein.

The lack of significant diversity in favor of legalization of marijuana in states with legal medical and recreational marijuana use compared to states without legal marijuana use is particularly fascinating. Although this may appear odd, no other studies have compared attitudes about marijuana across states that have legalized versus those that have not. However, this issue is worthy of some discussion. Since these longitudinal data go back to 1975, when no states had legalized any version of marijuana, there are actually very few states in the sample with some form of legalization (see Table 1, Recreational = 1%, medical marijuana = 8%). A cross-sectional study of the most recent data may uncover more differences between the states.

The results indicate that there is simply no difference in public opinion about marijuana legalization between states that have legalized marijuana and those that have not. Although this may appear odd to those who assume a consensus view, it is possible that other political processes, aside from public opinion, are influencing the political process that resulted in legislation to legalize or criminalize marijuana. Unfortunately, there is not any prior empirical work that compares attitudes about legalization in states with legal marijuana to those without. However, theorists such as Quinney (1970) argue that social policy reflects the will and interests of those in power rather than the majority. Other scholars of deviance purport that definitions will the result of politics and conflict that depend on diverse configurations of fear, power, and threat regarding a behavior (see Lofland 1969; Schur 1971). One need not look too far to find criticisms of crime and drug policy and theories of political (see Beckett and Sasson 2003; Hagan 2012; Simon 2007) and racial (see, e.g., Alexander 2012) motivations for drug and crime policies As such, it is possible that public opinion on marijuana legalization does not vary much across states that have implemented legislation to legalize marijuana. Instead, there are likely other issues at that influence these decisions, and it may be erroneous to assume that a majority public opinion in a state will automatically result in legalization or vice versa.

Though there is little difference in attitudes toward marijuana legalization between states that have legalized marijuana and those that have not, there are significant differences across states and time. These differences support ideas about constructions of deviance (see Becker 1963; Goode and Ben-Yehuda 2009; Lofland 1969; Schur 1971) in relation to marijuana. Given the diversity in time

and place, it is quite plausible that the perceived threat of marijuana varies over time and place, and there is perhaps less fear of marijuana in more recent years than in earlier periods of study. Thus, in areas and time periods where marijuana is perceived as less of a threat and/or users do not have a big power differential compared to those who fear marijuana it is viewed as less deviant (see Lofland 1969). The evolving social definitions of marijuana as deviant and/or criminal make it a momentous topic for scholars of deviance and this project illustrates how fear of crime and presidential rhetoric are related to the way marijuana is perceived in society.

As is commonly the case with secondary data analysis, this project was limited in some respects. For example, these data are compiled from repeated cross-sectional surveys rather than longitudinal panels or cohort surveys, so they are not able to examine changes within individuals over time. Some single-level studies (see Nielsen and Bonn 2008; Stringer and Maggard 2016) have used Firebaugh (1997) regression analyses to examine differences between presidents and across time periods by creating binary variables for each presidential term. However, this multilevel analysis is limited in its ability to include several dummy variables at level three due to concerns regarding statistical power and degrees of freedom. Thus, future studies may choose to explore both quantitative drug rhetoric and the qualitative abilities of presidents. Future studies should also consider the role that fear of crime plays in the media, president, crime, and public opinion relationship. This exploration could lead to a greater understanding of the complexity of these relationships. In spite of these limitations, this project contributes to the existing literature by illustrating the relationship between presidential drug rhetoric and public opinion about marijuana while controlling for objective measures. This study endeavors to set the stage for future research into the interrelationships between the president, media, fear of crime, and public opinion.

Notes on contributors

Richard J. Stringer Ph.D. is an Assistant Professor in the Department of Sociology and Criminal Justice at Kennesaw State University in Kennesaw, GA. His research interests include drug & alcohol policy, courts & sentencing, policing, and advanced quantitative methods. His prior research has been funded by the U.S. Department of Justice and has appeared in outlets such as the *Journal of Drug Issues, American Journal of Criminal Justice*, and the *Journal of Crime and Justice*. He also serves as Associate Editor for the *Journal of Criminal Justice & Law*.

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 Ph.D. 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*.

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