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FRAMING MARIJUANA: A STUDY OF HOW US NEWSPAPERS FRAME MARIJUANA LEGALIZATION STORIES AND FRAMING EFFECTS OF MARIJUANA STORIES

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ABSTRACT

The current study was initially designed to look at how the issue of marijuana legalization was presented in U.S. newspapers and how news frames could influence the audiences' attitudes or behavioral intentions. To investigate these questions, two different types of research methods were employed: content analysis and experiment. Using framing theory as a theoretical framework, this study found that marijuana legalization has been largely described as a legislation issue or a law enforcement issue, and medical benefit and medical risk were most frequently mentioned attributes to support and oppose marijuana legalization. Findings indicated that news frame could influence the public's attitudes toward marijuana legalization. Also, this study found as a two-sided frame effect, respondents who read a two-sided frame showed the middle ground between those who read a support frame and those who read an opposition frame. Individual marijuana experience did not moderate the framing effects on attitudes toward marijuana legalization. However, findings showed that marijuana experience played an important role in shaping attitudes. Using the mediation model, this study showed that significant indirect effects on behavioral intention to use medical and recreational marijuana and support for medical and recreational marijuana through two each mediating path: via attitudes and via attitudes and risk perceptions.

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CHAPTER 1

INTRODUCTION

Marijuana is the most frequently used illegal drug in the United States (American Public Health Association, 2014; Cerda, Wall, Keyes, Galea, & Hasin, 2012; Wilkinson, Yarnell, Radhakrishnan, Ball, & D'Souza, 2016). It has been used for thousands of years for medical and social purposes (Caulkins, Hawken, Kilmer, & Kleiman, 2012; Finkel, 2007). Marijuana is the American term for a mix of dried flowers, stems, seeds, and leaves of the plant *Cannabis sativa* (Caulkins et al, 2012; Finkel, 2007), and the Institute of Medicine (1999) refers to marijuana as "unpurified plant substances, including leaves or flower tops whether consumed by ingestion or smoking." Marijuana contains delta-9-tetrahydrocannabinol (THC), which is the key psychoactive ingredient (Wilkinson et al., 2016). THC stimulates specific sites in the brain and leads to the "high" that users experience when users smoke marijuana (National Institute on Drug Abuse, 2016). Medical applications of marijuana encompass "the use of *Cannabis sativa* (THC in particular) as a therapeutic drug prescribed for a wide variety of therapeutic applications, including relief from nausea and appetite loss, reduction of intraocular pressure, reduction of muscle spasms, and relief from chronic pain" (Finkel, 2007, pp. 71-72).

In 1972, the U.S. Congress classified marijuana as a Schedule I Controlled Substance because it was considered as having no accepted medical effect and having a high potential for abuse (Hudak, 2016). Thus, the cultivation, distribution, and possession

of marijuana are illegal under the Controlled Substances Act (CSA) except for federally approved research (Garvey & Yeh, 2014). As of February 2017, however, a total of 28 states and the District of Columbia (DC) have allowed medical use of marijuana for patients with approved health conditions. In recent years, eight states – Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, and Washington – and DC have enacted laws to authorize the production, distribution, and possession of marijuana.

There are three ways to liberalize marijuana policies: marijuana legalization, marijuana decriminalization, and medical marijuana (Office of National Drug Control Policy, 2014). First, in the states where marijuana is legal, laws or policies permit the possession and use of marijuana under state law (e.g., Alaska Ballot Measure 2, California Proposition 64, Colorado Amendment 64, Maine Question 1, Massachusetts Question 4, Nevada Question 2, Oregon Measure 91, Washington Initiate 502, and Washington D.C. Initiative 71). In Colorado and Washington, for example, individuals over the age of 21 can use marijuana for nonmedical (so-called "recreational") use. Second, in the states where marijuana is decriminalized (e.g., Mississippi, North Carolina, etc.), laws or policies can reduce the penalties for possession and use of small amounts of marijuana. In these states, the penalties can be treated as civil rather than criminal. Third, in the states where medical marijuana is permitted (e.g., Arizona, Illinois, New York, etc.), laws allow individuals to use or possess marijuana under state law. In these states, the use of marijuana is acceptable for therapeutic and medical purposes only by qualified patients.

In 2015, more than 113 million Americans aged 18 or older (nearly 46.9%) admitted to having tried marijuana in their lifetime (Center for Behavioral Health

Statistics and Quality, 2016). According to the FBI crime report (2015), the number of arrests for drug abuse violations was approximately 1.5 million (estimated at 1,488,707 arrests) in 2015. Among these arrests, 38.6% were for marijuana possession and 4.6% were for marijuana sale or manufacturing. In particular, the proportion of arrests from the West region was only 16.5%, while 46.1% were from the Northeast, 50.7% from the Midwest, and 46.5% from the South. In 2010, there were more than 1.6 million arrests for drug violations nationwide, and 45.8% (about 732,800 Americans) were arrested for possession and 6.3% for sale or manufacturing (Caulkins et al., 2012). Compared to the 2010 report, the proportion of arrests for marijuana possession, sale, and manufacturing has somewhat decreased in 2015. This can be explained in that more and more states, particularly states from the West, legalized nonmedical and medical use of marijuana.

Why is the issue of marijuana legalization important in the U.S.? What are the points of controversy? In the U.S., marijuana legalization may be one of the most controversial issues including legal, policy, science, health, medical, and individual rights considerations. First, the essential question may be whether marijuana has medical value. The national controversy over marijuana legalization involves some benefits and risks of marijuana use including medical marijuana use (American Public Health Association, 2014; Finkel, 2007). For example, proponents advocate that marijuana should be legalized because of the benefits of marijuana use (e.g., medical benefits, reducing illicit-related crimes, or positive economic benefits), while opponents argue that it should be illegal because of the risks of marijuana use (e.g., medical risks or side effects, gateway effect, or increasing social ills). Second, it is important that this issue has been debated from a legal or public policy perspective. Since California legalized medical use of

marijuana in 1996, marijuana legalization has been a highly contested public issue between state and federal drug laws (Golan, 2010). Third, marijuana legalization has been debated as a socially controversial issue (Caulkins et al., 2012). For example, proponents argue that marijuana legalization could reduce illicit-drug related crimes and social costs such as enforcement or imprisonment, while opponents contend that marijuana legalization may increase crimes and cause social ills such as abuse and automobile crashes. Fourth, it is also important to consider economic effects of marijuana legalization (Caulkins et al., 2012). After legalization, for example, governments can gain revenues by imposing taxes on marijuana sales, while taxes and regulations involve enforcement and cost, as well.

Above all, the public health effect of marijuana legalization has been discussed as a controversial issue (Wilkinson et al., 2016). As states continue to legalize both medical and recreational use of marijuana, numerous public health issues have become gradually relevant. Wilkinson et al (2016) point out that more research is needed to better understand the impact of marijuana legalization on public health. Although it is very prominently discussed in terms of public health, legal, public policy, and economic perspectives, communication researchers have paid little attention to how the media presented this issue and the effects of news frames on the public.

Therefore, in order to reduce the gap in the literature, the current study makes an attempt to comprehensively examine how U.S. newspapers have presented the issue of marijuana legalization. Further, this study investigates the effects of news frames related to marijuana legalization stories on the public. Mass media can play a key role in the process of defining a social problem. The media may frame an issue in a certain way,

telling the readers what is important to know about the issue (Gitlin, 1980). Also, the media may play an important role in behavior change, providing health information that may influence individual or social variables that ultimately affect behavior (Stryker, 2003). Health communication scholars have used framing as a theoretical framework for the analysis of media content (e.g., Golan, 2012; Menashe & Siegel, 1998; Smith & Wakefield, 2006).

It is necessary to indicate why this study examines how newspapers present this issue in the U.S. and how news frames can have an influence on the public. First, the manner in which an issue is framed can shape public opinion (Price, Tewksbury, & Powers, 1997), including public opinion associated with the medical use and recreational use of marijuana. This news framing, in turn, can affect public policies about marijuana use. Thus, it is essential to investigate how the media inform the public of relevant information and present a variety of opinions or arguments toward the issue.

Second, marijuana legalization shows a conflict between federal and state governments. Although marijuana is legalized in a few states, the possession or cultivation of marijuana is illegal under the federal law. Thus, this topic offers a clear example regarding how the states can implement policies that deviate from those advanced by the federal government (Garvey & Yeh, 2014), and this conflict means that marijuana legalization is a political issue. Thus, political orientation of newspapers can influence selection of certain frames related to marijuana legalization. Some newspapers may support that each state can legalize marijuana. Thus, it is important to look at how a type of newspapers – liberal versus conservative newspapers – selects certain frames.

Third, since the 1990s, the public's support for marijuana legalization has increased (Pew Research Center, 2016). If there is a relationship between the public support and the way in which the issue is framed, it can be argued that the media can play an important role in shaping public opinion about marijuana legalization. Thus, it is important to explore the readers' interpretation of certain frames and the effect of frames on public opinion about marijuana legalization.

Fourth, use of drugs such as marijuana is an unobtrusive issue in which people know the drug problem mainly via the media rather than via personal experience though a high percentage said they had tried it in their lifetime (Johnson, Wanta, Boudreau, Blank-Libra, Schaffer, & Turner, 1996; McCombs, 2004; Zucker, 1978). Because the public may receive news and information related with marijuana largely by the media, it is possible that the media can play an important role in shaping how the public thinks about the issue of marijuana legalization. The way in which marijuana legalization is framed can affect how the public thinks about it. Thus, it is necessary to investigate how newspapers frame the issue, and how certain news frames can influence the way people think about this issue.

The current study has three purposes to better understand how marijuana legalization has been presented in the U.S. newspapers and how news frames can affect public opinion. The first purpose of this study is to provide an initial summary of news coverage about marijuana legalization in the U.S. As a theoretical framework, framing theory is used to examine how U.S. newspapers have presented marijuana legalization to the public. First, this study examines the *organizing theme* of marijuana legalization stories (Gamson & Modigliani, 1989). A marijuana legalization story, for example, can

be framed as a medical issue, describing the public debate on medical benefits and risks of marijuana. Alternately, marijuana legalization stories can emphasize legislative procedures by focusing on conflicts between governors and state legislatures. Another alternative is the framing of marijuana legalization as an economic issue, debating the effects on tax revenues and revitalizing regional economies. Second, this study investigates *issue attributes* – the reasons to support or oppose marijuana legalization (Kim, Scheufele, & Shanahan, 2002). This study analyzes which attributes of the issue have appeared more often than others in news coverage. For example, the attribute to support marijuana legalization may be mentioned as medical benefit, maintaining that marijuana can have therapeutic value in treating appetite loss, nausea, and chronic pain. On the contrary, as the attribute to oppose marijuana legalization, a story may highlight medical risks of marijuana, suggesting that marijuana has no scientific evidence about therapeutic value. Third, this study examines the *tone* of each news article (Ghanem, 1997). The story tone refers to answering the question of whether the story is overall in support of or in opposition to marijuana legalization.

The second purpose of this study is to investigate factors that can affect newspapers' selective use of frames. This theoretical background draws upon the notion of *frame building* (Kim, Besley, Oh, & Kim, 2014; Scheufele, 1999). This study examines how a certain frame-building factor – political orientation of newspapers – has affected newspapers' choice of specific organizing themes, issue attributes, and story tones. As a recent survey shows (Pew Research Center, 2015), Democrats and Republicans are politically divided over legalizing marijuana. Approximately 65% of conservative Republicans oppose legalizing marijuana, while about 75% of liberal

Democrats support legalizing marijuana. When covering the issue of marijuana legalization, political orientation of newspapers, as a frame-building factor, may influence selecting certain frames. To test this theoretical perspective, this study makes a series of comparisons with news frames of conservative and liberal newspapers.

To explore the first and second purposes, the current study content analyzes 10 U.S. newspapers, including three national newspapers, three newspapers in states where marijuana is legalized, and four newspapers in states where marijuana is illegal. To explore political orientation of newspapers, this study analyzes five conservative and five liberal newspapers between 1995 and 2014.

The third purpose of this study is to comprehensively explore the effects of news frames on the public in the context of marijuana legalization. Specifically, this study examines whether certain news frames can play a role in shaping public opinion toward marijuana legalization (Lancaster, Hughes, Spicer, Matthew-Simmons, & Dillon, 2011) in competitive framing environments (Borah, 2011a, 2011b; Nisbet, Hart, Myers, & Ellithorpe, 2013). Also, the role of individual marijuana experience is explored in framing effects. Lastly, the current study evaluates how attitude and risk perception may mediate framing effects on behavioral intention and support for policy. To examine this purpose, this study employs an experimental design. Data are collected from college students enrolled in a large public southeast university in April 2016.

First, the framing effect is tested in terms of readers' cognition. Specifically, this study investigates whether respondents who read a news article that highlights a certain frame can recognize the frame accordingly. And then, it is examined whether exposure to each frame can influence how respondents think about the issue of marijuana

legalization. To test these effects of news frames, four types of frames are examined: *legislation, law enforcement, economy*, and *medical effect*.

Second, this study aims to explore the role that the media can play in shaping public perceptions about marijuana legalization. Specifically, it examines whether certain news frames can affect attitudes toward marijuana legalization in competitive framing environments. Three types of news frames are analyzed: *support frame* (to support marijuana legalization), *opposition frame* (to oppose marijuana legalization), and *two-sided frame* (both to support and to oppose marijuana legalization). Many scholars have criticized that little research has been done to examine two-sided (dual, mixed, or competitive) frames (Borah, 2011a, 2011b; Chong & Druckman, 2010, 2007a; Nisbet et al., 2013). In order to address the gap in the framing literature, this study initially investigates the effect of a *two-sided frame* in the context of marijuana legalization stories.

Third, to gain a more accurate understanding of personal experience in framing, the current study explicates the influence of individual marijuana use on framing effects. As mentioned earlier, more than 113 million Americans have tried marijuana in their lifetime. Personal marijuana experience may play a key role in shaping attitudes toward marijuana related issues (i.e., Alvaro, Crano, Siegel, Hohman, Johnson, & Nakawaki, 2013; Cho & Boster, 2008). For example, Cho and Boster (2008) found that prior marijuana use could influence antidrug attitudes. Respondents who answered having never used marijuana showed more positive attitudes toward antidrug messages than those who reported having used marijuana. Thus, this study examines how personal

marijuana experience can play a role in shaping attitudes toward marijuana legalization across three framed conditions.

Lastly, the current study aims to test the mediating effects of attitudes and risk perceptions on behavioral intentions to use medical and recreational marijuana and support for medical marijuana and recreational marijuana. In numerous framing effects studies, researchers have explored the influence of frames on outcomes of attitudes or opinions (e.g., Chong & Druckman, 2007a; Iyengar, 1991). As Borah (2011b) indicates, however, only a few studies examined outcomes of behavioral intentions. Thus, this study seeks to address this relative gap in the literature by exploring how attitudes and risk perceptions of marijuana legalization can mediate the effects of exposure to different frames on the outcomes of behavioral intentions and support for marijuana policy.

In summary, the results of the current study can provide a comprehensive understanding of how U.S. newspapers present the issue of marijuana legalization and of how news frames can influence public attitudes and behavioral intentions. In addition, this study can make theoretical contributions to the framing literature by examining frame building, competitive framing effects, the effects of personal marijuana experience, and the mediation model.

CHAPTER 2

LITERATURE REVIEW

Chapter 2 Summary: This chapter starts with a review of the literature on marijuana use in the United States and reviews literature on the issue of marijuana legalization, including disputes between federal and state governments, public opinion, and debates regarding risks and benefits of using marijuana. As a theoretical framework, this chapter presents literature on framing theory, including organizing themes, issue attributes, and story tone. Then, it presents literature on framing effects, including a two-sided frame effect. This chapter discusses the role of personal marijuana experience in shaping attitudes toward marijuana and proposes a mediation model that includes behavioral intentions to use medical and recreational marijuana and support for policy as dependent variables. Finally, this chapter provides the research questions and hypotheses the current study seeks to answer.

2.1. Marijuana Use in the United States

In 2015, approximately 33 million Americans aged 18 or older (nearly 13.6% of Americans aged 18 or older) reported marijuana use in the last year, and more than 20 million Americans (nearly 8.4%) answered that they had used marijuana in last month (Center for Behavioral Health Statistics and Quality, 2016). Many Americans are still engaging in initiation of marijuana use. The average age of respondents aged 12 to 49 who used marijuana for the first time was 19.0 years old in 2015 (Center for Behavioral

Health Statistics and Quality, 2016). However, the true number will be even higher because some respondents are unwilling to report their illegal behaviors (Caulkins et al., 2012).

Many American teenagers consume marijuana; 49.8% of 12th graders have tried marijuana at least once, and 27.6% used marijuana one or one more times during the past month (Office of National Drug Control Policy, 2016). About 1.7 million adolescents aged 12 to 17 (nearly 7% of American youth aged 12 to 17) reported marijuana use in past month (Center for Behavioral Health Statistics and Quality, 2016). The trend over the past 10 years showed a steady decline in marijuana use among American youth aged 12 to 17 (Center for Behavioral Health Statistics and Quality, 2016). However, recent trends in marijuana use showed that the rate of past-month marijuana use among 11th graders increased from 21.0% in 2005 to 24.8% in 2015, and the rate among 12th graders increased from 22.8% in 2005 to 27.6% in 2015 (Office of National Drug Control Policy, 2016).

Marijuana cultivation is mostly gardening and marijuana can be grown almost everywhere (Caulkins et al., 2012). For example, California is the state where most marijuana is produced in outdoor plants (74% of the 9.8 million plants in 2009) (Caulkins et al., 2012). However, most marijuana comes from Mexico and other countries. Many users seem to obtain marijuana from around them. Approximately 90% of respondents report that they got marijuana most recently from their friend or relative, and more than half said obtaining it for free (Caulkins et al., 2012). Thus, marijuana can be one of the most frequently used illegal drugs (Wilkinson et al., 2016).

2.2. Issue of Marijuana Legalization

2.2.1. Positions of federal and state governments regarding marijuana use

Marijuana is illegal under the federal law. Because marijuana has a high potential for abuse, no currently accepted medical use and a lack of consensus on the drug's safety safety, it is classified as a Schedule I substance (Office of Diversion Control, 2014). The Obama administration repeatedly opposed marijuana legalization because of the belief that increasing access to the drug would be against public health policy. In August 2013, the U.S. Department of Justice announced an updated marijuana enforcement policy, making clear that marijuana remains illegal federally (Department of Justice, 2013).

States can individually vote to legalize marijuana despite the federal law. In 1996, California voters passed Proposition 215, allowing for the medical use of marijuana. Since then, a total of 28 states and DC have legalized medical marijuana. In November 2012, for the first time, Washington Initiative 502 legalized marijuana by amending state law to allow for small amounts of marijuana and Colorado Amendment 64 provided a general outline to allow for possession, use, purchase, consumption, and transportation of up to one ounce of marijuana (Garvey & Yeh, 2014). Then, adults' recreational use of marijuana was legalized through Oregon Measure 91, Alaska Ballot Measure 2, and Washington D.C. Initiative 71 in 2014, and California Proposition 64, Maine Question 1, Massachusetts Question 4, and Nevada Question 2 in 2016.

States with medical marijuana laws have an evident form of patient registry, and they provide protection against arrest for possession up to a limited amount of marijuana for medical use (National Conference of State Legislatures, 2014). The Obama administration also showed a realistic and forward-thinking mindset in dealing with

medical marijuana. In October 2009, the Department of Justice issued a memorandum, which instructed law enforcement officials not to focus federal resources on individuals "whose actions are in clear and unambiguous compliance with existing state laws providing for the medical use of marijuana" (Department of Justice, 2009). This memorandum actually decriminalized medical use of marijuana at the federal level.

Since California allowed for medical marijuana, the issue of marijuana legalization has been highly debated. The national controversy on marijuana offers "a clear example of the confusion associated with the states' ability to pursue policies that deviate from those advanced by the federal government" (Garvey & Yeh, 2014, p. 1). Table 1 shows three legal positions – marijuana legalization, medical marijuana, and illegal – in 50 states and DC in February 2017.

2.2.2 Public opinion about legalization of marijuana use

Public support for marijuana legalization has varied over time and across demographic groups since surveys began measuring it in the 1969. Figure 1 shows that public support for legalizing marijuana use increased during the 1970s, dropped through the 1980s, and has grown since the 1990s. According to a recent survey (Pew Research Center, 2016), public support for legalization marijuana use is at an all-time high of 57% in 2016, up from 16% in 1989. It was in a 2013 survey that public support for legalization (52%) first outnumbered public opposition (45%). The results of a 2015 survey also show that opinions about marijuana legalization remain divided along age, race, and partisan lines (Pew Research Center, 2015). That is, respondents who are Black (58%), young (aged 18 to 34, 68%), and Democrats (59%) are more supportive of marijuana legalization than those who are White (55%), Hispanic (40%), older generation (70 and

older, 29%), and Republicans (39%). According to the same survey, however, about 62% of Americans report that if marijuana use were legal, it would bother them if people used it in public. Also, another survey reveals that about 69% of Americans regard alcohol as more harmful than marijuana, while merely 15% view marijuana to be more harmful (Pew Research Center, 2014).

In addition, the survey results from the Pew Research Center (2015, 2013) show that approximately 68% of Millennials (born 1981-now) support marijuana legalization, up from only 39% in 2008. Interestingly, around 50% of Boomers (born 1946-1964) now favor legalizing the use of marijuana. In 1978, 47% of Boomers favored legalizing marijuana, but support dropped during the 1980s, reaching a low of 17% in 1990. Support for marijuana legalization among the Generation X (born 1965-1980) has increased noticeably from 28% in 1994 to 42% a decade later and 52% in 2015. The Silent Generation (born 1925-1945) continues to oppose marijuana legalization more strongly than younger age cohorts. However, the percentage of Silents who favor legalization has nearly doubled from 17 % in 2002 to 29% in 2015.

2.2.3 Risks and benefits of using marijuana

While the available science about marijuana impacts is inconclusive, the debate over legalization is grounded in a number of studies that describe risks and/or benefits of using the drug. After legalizing recreational use of marijuana use, there were two things that affected public health (Walker, 2014). First, legalization somewhat increased the number of marijuana users and the quantity being consumed because of cheaper price and increased accessibility. Second, legalization improved the safety of almost all the marijuana that would be consumed anyway.

The scientific community has not reached a consensus on the risks and benefits of marijuana use because marijuana is not a standardized good and it is difficult to determine whether marijuana use causes negative consequences or just happens to be correlated (Caulkins et al., 2012; Wilkinson et al., 2016). Generally, opponents (those who have an unfavorable attitude toward marijuana legalization) tend to argue that there are many risks of marijuana use, while proponents (those who have a favorable attitude toward marijuana legalization) are more likely to maintain that marijuana use should be legalized because of medical benefits.

There are several domains regarding the risks of marijuana use. First, marijuana use can lead to *dependence* as a need for treatment. A distinctive marijuana withdrawal syndrome has been identified; the syndrome involves restless, irritability, mild agitation, insomnia, nausea, and cramping (Institute of Medicine, 1999). Research indicates that 30% of users can develop problematic use habits, which can lead to dependence (National Institute on Drug Abuse, 2016). The earlier the youths begin to use marijuana, the more likely they are to become dependent on it (Winters & Lee, 2008). However, marijuana dependence does not, on average, create the same social and personal problems as alcohol or heroin dependence. Room, Fischer, Hall, Lenton, and Reuter (2010) found that marijuana posed less addictive risk than tobacco, alcohol, cocaine, stimulants, or heroin.

Second, marijuana use may lead to *emphysema and other respiratory problems*. Frequently inhaling smoke is harmful for people's lungs (Caulkins et al., 2012). Smoking marijuana includes many of the same irritants as smoking tobacco. Numerous studies suggest that marijuana smoke is an important risk factor in the development of

respiratory disease (Institute of Medicine, 1999). Analyzing 452 marijuana users (but who did not smoke tobacco) and 450 non-users (of either marijuana or tobacco), for example, Polen, Sidney, Tekawa, Sadler, and Friedman (1993) found that smokers who use marijuana frequently but do not smoke tobacco have more respiratory problems than nonsmokers.

Third, marijuana use may lead to *mental health problems*. Statistically, there is a strong relationship between marijuana use and the occurrence of psychotic symptoms (National Institute on Drug Abuse, 2016; Wilkinson et al., 2016). Depression, anxiety, paranoia, and personality disturbances have been associated with frequent marijuana use (Brook, Cohen, & Brook, 1998; Green & Ritter, 2000). For example, Moore et al. (2007) found that marijuana use can increase the risk of schizophrenia, and heavy users are vulnerable to acute psychotic reactions.

Fourth, marijuana use can lead to a *gateway effect*. The youth who try marijuana are statistically much more likely than their peers who do not use marijuana to proceed to use other illegal drugs (Caulkins et al., 2010; National Institute on Drug Abuse, 2016). Because many people have opportunities to use marijuana before they have opportunities to use other drugs, marijuana use could precede hard drug use.

Fifth, marijuana use can lead to *crime and adverse educational outcomes*. Marijuana use under a prohibition can cause other crimes and delinquency in the form of violations of drug laws (Caulkins et al., 2012). Also, there is a correlation between marijuana use and poor performance in high school (Caulkins et al., 2012). Meier et al. (2012), for example, found that adolescents who persistently use marijuana can have a lower IQ later in life.

Sixth, marijuana use may influence *driving ability* (American Public Health Association, 2014; Wilkinson et al., 2016). For example, after the change in federal policy in 2009, the number of motor vehicle accidents has increased in Colorado (Wilkinson et al., 2016). However, there are still mixed results regarding associations between marijuana use and driving accidents (American Public Health Association, 2014).

In addition, many risks and problems of marijuana use have been indicated and examined as follows: overdose, cancer, cognitive impairment, secondhand smoke, effect of parental use on children, lower life satisfaction, and higher health and financial costs for society (Caulkins et al., 2012; National Institute on Drug Abuse, 2016).

On the contrary, proponents point to marijuana as having *therapeutic value* in treating a range of symptoms: among the most common are appetite loss, nausea, chronic panic, anxiety, sleeping disorders, muscle spasms, and intraocular pressure (Caulkins et al., 2012). Cannabis has been reported anecdotally as being beneficial for many common complications of HIV, including poor appetite and pain caused by HIV-related peripheral neuropathy (Finkel, 2007). Woolridge, Barton, Samuel, Osorio, Dougherty, and Holdcroft (2005) found that 143 of 523 (27%) respondents reported using marijuana for treating HIV symptoms. The patients said use of cannabis provided a reduction in muscle and nerve pain, nausea, depression, and an improvement in appetite.

The Institute of Medicine (1999) found therapeutic value in particular for symptoms such as pain control, glaucoma, control of nausea and vomiting, multiple sclerosis (MS), and appetite stimulation. The Institute of Medicine (1999) also concluded that scientific data suggest the potential therapeutic value of marijuana, primarily THC.

While there are numerous anecdotal reports of the benefits of marijuana, there is a paucity of clinical trials and studies that would provide more definitive findings about the benefits and the risks of marijuana (Finkel, 2007).

2.3. Theoretical Framework: Framing Theory

2.3.1. Framing theory: News framing and frame building

Framing theory has its origins in many disciplinary traditions, and different researchers have defined framing as a concept at different levels of analysis (Scheufele, 1999). In general, there are two approaches to examining framing theory: sociological and psychological views. First, the sociological (macro-level) approach has been developed from assumptions drawn in attribution (Heider, 1959) and frame analysis (Goffman, 1974). Second, the psychological (micro-level) approach can be summarized in studies on prospect theory (Kahneman & Tversky, 1979). Thus, framing has both macro-level and micro-level constructs (Scheufele, 1999). As a macro-level construct, framing means types of presentation that communicators including journalists use to provide information in a way that is reflected in existing primary schemas among their readers. As a micro-level construct, framing refers to how people present information and characteristics about issues as they form impressions.

Communication researchers have defined framing. Entman (1993, p. 52) defines framing as "to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." Gitlin (1980, p.7) defines media frames as "persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organize

discourse, whether verbal or visual." Gamson and Modigliani (1989) refer to frames as interpretative packages that offer meaning to an issue. At the core of this package is "a central organizing idea, or *frame*, for making sense of relevant events, suggesting what is at issue" (Gamson & Modigliana, 1989, p. 3). Media frames suggest how the public can interpret an issue or event, and framing involves selection and salience (Entman, 1993).

In order to understand framing function in terms of the production and consumption of news and explain the constructs of framing theory, it is important to review a process model advocated by Scheufele (1999). He suggested a process model of framing effects that "conceptualizes framing as a continuous process where outcomes of certain processes serve as inputs for subsequent process" (Scheufele, 1999, p. 114). In this model, there are two kinds of frames: individual frames and media frames. These frames can be either independent variables or dependent variables. The model examines four processes: frame building, framing setting, individual-level effects of framing, and a link between individual frames and media frames (journalists as audiences). Frame building and framing setting are important in understanding how news is produced and consumed. In particular, with the notion of frame building, the present study explores how media organizations – conservative and liberal newspapers – describe marijuana legalization stories.

Frame building refers to "the processes that influence the creation or changes of frames applied by journalists" (Scheufele, 1999, p 115). This term describes how some internal factors of news media organizations can affect the selection of news frames. Such factors include social norms and values, organizational pressures and constraints, pressures of interest groups, journalistic routines, and ideological or political orientation

of journalists (Scheufele, 2000). External factors, such as interaction between journalists and elites, are important in the frame building process, as well (de Vreese, 2005). As Scheufele (1999) points out, the term frame building well explains how the organizational factors of news media can impact the selection of frames.

Gans (1979) discusses several theories with regard to how news stories are presented. The first theory is *journalistic-centered* influence. Journalists select stories depending on their professional news judgment. Thus, beliefs, attitudes, and political ideologies of journalists may play an important role in framing a story. That is, the characteristics of individual journalists can affect the way they frame news stories. The second type of influence is *organizational pressures and constrains* (Kim, Carvalho, & Davis, 2010). Gans (1979) explains this notion as media organizational routine, suggesting that journalists are subject to seniority, struggling for promotion, and news gathering routines. Also, local newspapers tend to represent local interests because they are generally subject to local market and interests (e.g., Griffin & Dunwoody, 1997; Kim, Carvalho, Davis, & Mullins, 2011). The third theory is *event-centered* influence. Gans (1979, p. 79) called this the "mirror theory," which posits that events decide news selection. In this theory, journalists are a conveyor of news events' images to the readers. The final type of influence describes news selection processes according to *external factors*. These factors include interest groups, advertisers, government controls, and ideology. For example, journalists may frame news stories by following a dominant political ideology in a society (Kim et al., 2014).

2.3.2. News framing studies on the issue of marijuana legalization

A number of researchers have used framing theory in their communication studies. However, there are small numbers of studies that examine the issue of marijuana use or marijuana legalization by applying framing theory (e.g., Golan, 2010; McGinty, Samples, Bandara, Saloner, Bachhuber, & Barry, 2016; Stryker, 2003). For example, Stryker (2003) examined how aggregate levels of news coverage about marijuana have affected adolescents' marijuana behavior. As dependent variables, Stryker measured three constructs: abstinence from marijuana in the past 30 days, perceived harmfulness of trying marijuana, and personal disapproval of trying marijuana. As independent variables, Stryker defined marijuana news coverage as stories that mentioned positive or negative consequences of marijuana use. From news articles of the *Associated Press* since 1977, two media variables are measured: a *PRO reference* and a *CON reference*. A *PRO reference* was defined as a story that talked about any negative consequences of marijuana use. This includes references to punishments for using marijuana (e.g., suspensions, arrests, loss of jobs, etc.) and harmful effects of marijuana (e.g., lung damage, gateway effects, abuse). A *CON reference* refers to a story that talked about positive consequences of marijuana (e.g., medical uses of marijuana) or marijuana legalization. Findings showed that aggregate media coverage affected adolescents' abstinence from marijuana use and personal disapproval over time.

Golan (2010) explored how opinion journalists framed the medical marijuana issue in editorials and op-ed newspaper stories. Using the keywords "medical marijuana" between November 11, 2006 and November 11, 2008, Golan located and analyzed a total of 101 articles including 67 editorials and 34 op-eds. As key variables, Golan (2010)

tested two types of frame: *issue frame* and *sub-issue frame*. *Issue frame* is the main frame that was articulated in the opinion stories. This frame includes moral, medical, legal, political, and social frames. Then, the *sub-issue frame* focuses on certain aspects of medical marijuana. This frame includes marijuana's addictive properties, medical benefits (justification for the use of medical marijuana), state vs. federal laws, medical risks and side effects, program administration, and other. The findings showed that the editorials framed medical marijuana as a legal (33%) and political (28%) issue, while the op-eds framed it as a medical issue (50%). For sub-issue frames, the results indicated that the editorials framed medical marijuana as program administration (36%) and state vs. federal laws (30%), while the op-eds framed the issue as medical benefits (50%).

Recently, McGinty, et al. (2016) content analyzed how U.S. news media covered the issue of marijuana legalization between 2010 and 2014. By analyzing a total of 610 news articles from three types of news media outlets including print news, television news, and Internet news, they found that news stories about recreational marijuana were frequently reported in news outlets from the states, including Arkansas, Colorado, Oregon, and Washington, and DC, where legalized recreational use of marijuana is legal. With regard to the most often mentioned pro-legalization arguments, findings revealed that legalization would reduce criminal justice system involvement and costs (20%), increase tax income (19%), control criminal drug syndicates (15%), and improve current drug policy (13%). As the most frequently reported anti-legalization arguments, on the contrary, news stories mentioned that legalizing would harm youth health (22%), build legal marijuana businesses that lead to crime (7%), and cause impaired driving (6%). Interestingly, the findings showed that there were insignificant differences in mentioning

pro- and anti-legalizing arguments between Democrat-affiliated and Republican-affiliated newspapers.

2.3.3 Organizing theme

According to Gamson and Modigliani (1989), a frame refers to a key organizing idea that provides meaning to issues or events reported in a news story. A frame is an idea organizer that packages an issue in a specific way, telling what the issue is about (Kim et al., 2014). Because researchers paid little attention to examining news frames of marijuana legalization, I carefully reviewed more than 100 news articles to find out organizing themes in stories related to marijuana legalization and medical marijuana. Then, seven organizing themes were identified after examining marijuana legalization stories and previous studies (e.g., Golan, 2010; Lewis, Broitman, & Sznitman, 2015).

First, a marijuana legalization story can be framed as a *legislation* issue (Golan, 2010; Lewis et al., 2015). News stories in this theme primarily emphasize the legislative proceedings regarding marijuana use and marijuana legalization. This theme focuses on the conflicts between the governor and state legislature. Second, a marijuana legalization story can be organized as a *law enforcement* issue (Lewis et al., 2015). This theme highlights regulations of marijuana use. This frame includes operating procedures, regulations, controls, and activities associated with marijuana use and marijuana legalization. Third, a marijuana legalization story can be organized as a *trial* issue. A story in this category emphasizes debates in an official juridical trial. Forth, a marijuana legalization story can be covered as a *youth drug use* issue. This theme points out the problems and risks of young users and the so-called gateway effect. Fifth, a marijuana legalization story can be framed as an *economy* issue. A story in this theme highlights an

economic effect of marijuana legalization. This frame presents tax effects, new employment, and revitalizing regional economies. Sixth, a marijuana legalization story can be organized as a *patients'* issue (Lewis et al., 2015). This theme focused on the personal history about patients' marijuana use. This frame primarily deals with marijuana legalization as a private issue, corresponding with a *nonelite patients* frame that Lewis et al., (2015) presented. Finally, a marijuana legalization story can be presented as a *medical effects* issue (Golan, 2010; Lewis et al., 2015). This theme emphasizes the debates with regard to medical effects or benefits of marijuana use and chiefly regards marijuana legalization as a science or public health issue.

2.3.4 Issue attribute: cognitive perspective

Generally considered, issue attributes refer to certain characteristics or aspects of an issue that can be engaged to evaluate and think about the issue (Kim et al., 2002). When it comes to marijuana legalization, proponents advocate the benefits of marijuana use including medical marijuana, while opponents argue the risks of marijuana use. A discussion of marijuana legalization can comprise some reasons (or attributes) to support marijuana legalization (e.g., medical benefits or reducing illicit-drug related crimes) and at the same time reasons to oppose it (e.g., medical risks or gateway effect).

Likewise, news articles were reviewed in order to find out the reasons to support and oppose marijuana legalization or the risks and benefits of marijuana use (issue attributes). Then, I carefully selected some issue attributes, and arranged them for similar concepts. Next, I referred to the previous studies (e.g., Golan, 2010; Stryker, 2003) and compared my initial findings with the concepts that the literature presented. Through this processing, specific nine issue attributes are identified. In this study, two categories of the

issue attributes are examined: the reasons to support marijuana legalization (the benefits of marijuana use) and the reasons to oppose it (the risks of marijuana use). Two categories include several sub-categories.

The present study classifies the reasons to support as five sub-categories: *medical benefit, reducing crime, reducing social cost, economic benefit,* and *relieving pain*. First, *medical benefit* refers to the attribute that marijuana has therapeutic value in treating several symptoms, including appetite loss, nausea, chronic pain, anxiety, sleeping disorder, and intraocular pressure (Caulkins et al, 2012). A story focusing on this attribute maintains that marijuana should be legal for medical purposes and benefits. For example, "The strongest evidence for the health benefits of medical marijuana or its derivatives involves the treatment of chronic neuropathic pain and the spasticity caused by multiple sclerosis" (Brody, 2014). Second, *reducing crime* refers to the attribute that marijuana legalization can lead to reducing crimes associated with illicit drugs. A story in this frame also focuses on the increase of safety in communities. For example, "That it would provide a new stream of revenues for government cut down on drug-related violence and end a modern-day prohibition that effectively turns many citizens into lawbreakers" (Nagourney, 2010). Third, *reducing social cost* refers to the mention that marijuana legalization can lead to reducing social costs such as jail and law enforcement. For example, "… has now apparently fully embraced the idea of legalizing marijuana, arguing that it is a way to bring down soaring rates of incarceration and reduce the social and financial costs" (McKinley, 2012). Fourth, *economic benefit* refers to the mention that marijuana legalization can lead to increasing tax revenues and reduce the price because of the open market. Also, a story in this frame presents economic effects such as

new hires and revitalization of local communities. For example, "Legalization would move that trade into the open market, driving down the price and undermining the cartels' power and influence" (Longmire, 2011). Fifth, *relieving pain* refers to the attribute that the story focuses on the sympathetic aspects of patients or family suffering from a severe pain. Thus it is necessary to legalize marijuana in order to relieve pain. A story in this category highlights a humane story of some patients with a compassion tone. For example, "It's an issue of compassion. Mr. Slater said. It's an issue for those who are sick and dying and suffering and need that last-minute peace of mind" (Zezima, 2005).

The reasons to oppose have four sub-categories: *medical risk, increasing crime, gateway effect,* and *social ill*. First, *medical risk* refers to the attribute that there is no scientific evidence about medical marijuana benefits or no therapeutic value of marijuana (Wilkinson et al., 2016). Also, this frame focuses on the risks of marijuana use, especially to adolescents. For example, "The best studies of marijuana's effects on humans have so far shown little objective evidence of benefit in patients with epilepsy or multiple sclerosis" (Hurley, 2005). Second, *increasing crime* refers to the mention that marijuana legalization can lead to increases in illicit-drug related crimes and endanger society (Caulkins et al., 2012). For example, "Marijuana has been a destructive force … bringing into an otherwise largely peaceful rural environment an influx of weapons as a result of what he says are criminal cartels involved in the drug trade" (McKinley, 2011). Third, *gateway effect* refers to the attribute that marijuana legalization can lead to increased likelihood of future hard drug use (Caulkins et al., 2012). This frame also highlights that medical legalization can cause full legalization including recreational use. For example, "The arguments about medical use had been a pretext for encouraging recreational use

and creating a path to full legalization" (Johnson, 2011). Fourth, *social ill* refers to the mention that marijuana legalization can lead to social ills. These social ills include dependence, adverse education and employment outcomes, and car accidents (National Institute on Drug Abuse, 2016). For example, "The rising use and increased potency could affect the likelihood of car accidents and could lower school performance" (O'Connor, 2013).

2.3.5 Story tone: affective perspective

As Ghanem (1997) indicates, there are two types of attributes within framing effects: cognitive attributes and affective attributes. Cognitive attributes refer to issue attributes that deal with what is an issue about, while affective attributes refer to the story tone that the media present. Affective attributes consider audience's emotional responses to media stories (Ghanem, 1997). Coleman, McCombs, Shaw, and Weaver (2009) also suggest that issue attributes deal with the cognitive aspect of a news story, while story tone assumes affective perspective, providing the story a positive, neutral, or negative connotation. In the present study, story tone is identified as negative, neutral, or positive tone towards marijuana legalization or marijuana use (e.g., Kim et al., 2014). Story tone is considered after reviewing a whole story mainly based on headline and lead sentences. For example, if a story covers that marijuana legalization can solve social problems and improve the economy at a community, the evaluative tone of this story is positive. On the contrary, if a story highlights that marijuana legalization can cause crimes and ruin individuals' life and communities, this tone is negative. Neutral is an evaluative tone of stories with mixed messages or connotations.

2.4. Framing Effects

2.4.1 Framing effects in a competitive environment

In numerous experimental studies on framing, researchers have mostly examined the difference of framing effects in single frame conditions (Borah, 2011a). That is, most studies have employed an experimental design that examines a one-sided message design in which participants are randomly assigned to have one of two or more alternative messages of an event or an issue (Chong & Druckman, 2010). In a one-sided design, researchers test the effect of a certain frame compared to a control frame condition or an alternative frame condition. For example, Iyenga (1987) tested how different frames can affect the public's attitudes. In his experimental design, episodic and thematic frames were examined as alternative representations of a poverty issue.

In competitive frame environments, researchers test an additional condition, a two-sided or mixed frame condition, where the same subjects have both frames (e.g., both episodic and thematic frames in the same article) of an issue (Borah, 2011b; Chong & Druckman, 2007a; Cobb, 2005; Sniderman & Theriault, 2004; Nisbet et al., 2013). For example, Borah (2011b) tested the effects of news frames on behavioral intentions by using a 2 (motivated processing) × 3 (frame conditions) experimental design. As three frame conditions, participants received a story about the KKK rally on campus either as a free speech frame, or a public safety frame, or a mixed frame. Findings revealed that motivated processing enhanced framing effects in the mixed frame condition. That is, participants in the mixed frame condition indicated more willingness to seek information and talk. Also, findings showed that the mixed frame lay in between the free speech

frame and the public safety frame in the attitude toward the KKK rally, suggesting that the participants had a neutral stance when they read the mixed-framed story.

To better understand what actually occurs in controversial issues such as marijuana legalization, it is necessary to add a mixed argument in framing experiments. As Sniderman and Theriault (2004) indicate, we should make choices between several competing values in real politics. For example, the media may present reasons to both support and oppose marijuana legalization in the same story. It can be a more realistic setting for the public to receive two-sided arguments or values at the same time. Over the past decade, the political discourse around the issue of marijuana legalization has been dominated by competing frames over the legal, law enforcement, economic, and public health consequences of proposed state and federal government policies (Golan, 2010; McGinty et al., 2016). Thus, the topic of marijuana legalization can provide a proper case study to better understand opinion formation in a competitive framing environment.

However, scholars have paid little attention to the effects of multiple or competitive frame conditions (Borah, 2011a, 2011b; Chong & Druckman, 2010, 2007a; Nisbet et al., 2013; Sniderman & Theriault, 2004). As Chong and Druckman (2007a, p. 101) point out, "the role of multiple competing frames in each of these processes has gone largely unexplored." According to one recent study (Borah, 2011a), only 3.2% of the framing studies (of 329 peer-reviewed papers) investigated competitive or mixed frames in communication journals. Future research on the competitive framing effects should be greatly explored. Thus, the present study addresses the gap in the literature by investigating the competitive framing effects in the context of marijuana legalization.

2.4.2 Framing effects and marijuana experience

Marijuana is the most widely used illegal drug in the U.S., with about 3.3 million Americans aged 18 or older admitting to marijuana use in 2015 (Center for Behavioral Health Statistics and Quality, 2016). According to a recent survey (Pew Research Center, 2015), respondents who have ever tried marijuana (65%) are more likely to support marijuana legalization than those who have never tried it (29%). Another survey shows that respondents who have never tried marijuana (50%) are more likely to view marijuana as a gateway to hard drugs than those who have ever tried it (26%) (Pew Research Center, 2013). Marijuana users may have a certain preconception toward the issue related to marijuana legalization. Thus, it is necessary to explore how personal marijuana experience can influence attitude toward marijuana legalization across multiple framed conditions.

In the framing effects literature, researchers have examined the role of personal experience in shaping attitudes or opinions toward an issue (Alvaro et al., 2013; Cho & Boster, 2008). With a sample collected from elementary, middle, and high school students, for example, Cho and Boster (2008) explored how message framing (gain versus loss) influenced antidrug attitudes. In this study, early drug use was tested as a key factor to explain youths' drug-related risk. Findings revealed that never-used respondents tended to have more positive attitudes toward antidrug ads and greater intentions to not use marijuana. Loss frame messages were more persuasive for those who ever used marijuana in terms of attitudes and intentions, while there were no differences between gain and loss frames among those who never used marijuana. Also, by using the data collected from 12- to 18-year-old students, Alvaro et al. (2013) found that nonusers

showed more positive attitudes toward the antimarijuana ads than vulnerable nonusers and users. However, most of these studies aimed to examine the effects of anti-drug advertising.

As Nisbet et al. (2013) indicate, framing researchers have investigated how individual factors such as personal characteristics can moderate framing effects. To contribute to the framing effects literature, the present study investigates how prior marijuana use can moderate the framing effects (support vs. opposition) on attitudes toward medical marijuana and marijuana legalization.

2.4.3 Mediation model

As Borah (2011b) points out, numerous framing studies have demonstrated how news framing can influence information processing and changes in attitudes and opinions (Chong & Druckman, 2007a; Lecheler & de Vreese, 2012; Price et al., 1997; Scheufele & Tewksbury, 2007; Sniderman & Theriault, 2004) but examining behavioral intentions is not as frequent. One of the few studies testing behavioral intention investigates the effects of strategy and issue frames on intention to vote (Valentino, Beckmann, & Buhr, 2001). The issue frame focuses on the central issue positions of a candidate, while the strategy frames highlights a candidate's strategic motivations. Valentino et al. (2001) found that among nonpartisans and non-college graduates, those who were exposed to the strategy frame were less likely to vote than those who were exposed to the issue frame. In a more recent study, Borah (2007b) also tested the influence of competitive frame on two behavioral intentions: willingness to seek information and talk.

It is important to look at the influence of news frames on information processing and shifts in opinions and attitudes. In framing effects research, it is also crucial to

examine framing effects on behavioral intentions. Although behavioral intentions do not necessarily confirm the evidence of respondents' behavioral change, they should not be neglected in the framing literature because intention is the strongest predictor of doing the behavior (Ajzen & Fishbein, 1980). As dependent variables, the current study examines behavioral intention to use medical and recreational marijuana and policy attitude toward medical marijuana and marijuana legalization. In other words, this study tests the effects of news frames on the behavioral intentions of participants in different ways.

In addition, this outcome can be explained through the mediation model. In framing studies, the mediating procedures have increasingly received scholarly interest (Chong & Druckman, 2007b; Borah, 2011a). In general, a mediating variable explains the relationship between an independent variable (a predictor) and a dependent variable (a criterion variable). There is much research that shows these mediating effects in the framing literature (e.g., Jang, 2013; Lecheler & de Vreese, 2012; Niederdeppe, Gollust, & Barry, 2014; Nisbet et al., 2013). Examining news framing effects on political attitudes, for example, Lecheler and de Vreese (2012) tested the mediation processes of belief importance and belief content. They found that framing effects were significantly mediated by both mediators. In addition, mediators such as attitudes and perceived risks have been explored in communication studies (e.g., Martinez & Lewis, 2016). For example, Martinez and Lewis (2016) examined how two mediators, shifts in attitude and perceived normative pressure, could mediate the effects of information seeking on youths' intention to use marijuana. Findings revealed indirect relationships between

information seeking from media and interpersonal channels and behavioral intention to use marijuana through two mediators.

The current study tests how attitudes and risk perceptions toward marijuana can mediate the effects of news frames on behavioral intentions and policy attitudes. Although those who read an article with reasons to support marijuana legalization are not changed in their behavioral intentions, the associations between exposure to a certain news frame and behavioral intentions can be indirectly explained through specific mediators such as their attitudes and risk perceptions about marijuana.

2.5. Research Questions and Hypotheses

First of all, the current study examines how U.S. newspapers present the issue of marijuana legalization, and then it explores the factors that can affect newspapers' selective use of certain frames. Previous studies have shown that medical marijuana is primarily framed as a legal and political issue (e.g., Golan, 2010; Lewis et al., 2015). However, it seems unclear which organizing themes are most common in the media. Also, this study examines whether the frequency of organizing themes remains steady or not over time. As a recent survey (Pew Research Center, 2016) shows, public opinion on legalizing marijuana has dramatically changed. The time period of the current study ranges from 1995 to 2014. Thus, it is necessary to look at how organizing ideas have changed over time between 1995 and 2014. Therefore, we put first research questions as below:

*RQ*1a: (Organizing theme) What are the major organizing themes that emerge in newspaper coverage of marijuana legalization?

*RQ*1b: (Time) How have organizing themes changed over time, 1995 through 2014?

Likewise, researchers paid little attention to issue attributes (reasons to support or oppose marijuana legalization) in news coverage. It is important to examine how newspapers have presented issue attributes. Since the 1990s, public support for marijuana legalization has increased (Pew Research Center, 2016). As mentioned above, because marijuana is an unobtrusive issue, it is through the media that the public can know about the marijuana controversy (Johnson et al, 1996; McCombs, 2004; Zucker, 1978). Thus, the current study looks at how issue attributes have changed over time, 1995 through 2014. The second research questions are presented:

*RQ*2a: (Issue attributes) Which attributes of marijuana legalization have appeared more frequently than others in the newspapers?

*RQ*2b: (Time) How have issue attributes changed over time, 1995 through 2014?

In addition, the current study examines frame building by making a series of comparisons between conservative and liberal newspapers. As a factor of frame building, political orientation of newspapers is tested in this study. As mentioned earlier, marijuana legalization is a politically divided issue. Proponents argue that marijuana should be legalized with a liberal perspective, while opponents contend that marijuana should be prohibited and regulated with a conservative view. Thus, the following hypotheses are proposed:

*H1*a: Conservative newspapers will be more likely to contain the reasons (attributes) to oppose marijuana legalization than liberal newspapers.

*H1*b: Liberal newspapers will be more likely to contain the reasons (attributes) to support marijuana legalization than conservative newspapers

In the framing effects literature, researchers have begun to examine a two-sided message design (Borah, 2011a). However, they have paid little attention to explore how the media present an issue in competitive environments. Because a competitive frame environment related to a controversial issue is more similar to a realistic setting, it is important to look at whether the media also describe the issue with a one-side frame or a two-sided frame. Thus, to address this gap in the literature, the current study asks the third research question as below:

*RQ*3: (Two-sided frame) How often do two-sided framing and one-sided framing appear in newspaper coverage of marijuana legalization?

This study examines how the tones of marijuana legalization are presented over time between 1995 and 2014. Likewise, it can be predicted that liberal newspapers tend to describe the issue of marijuana legalization with a positive tone more often than conservative newspapers do. Also, this study aims to explore the story tone according to two news article types: non-opinion and opinion articles. Opinion articles can provide a specific format where editors and expert groups show a subjective journalism style (Golan, 2010; Firmstone, 2008). It can be expected that opinion articles are more likely to present the issue with either a positive or a negative tone, while non-opinion articles tend to describe it with neutral tone. Thus, the following research questions and hypotheses are posed:

*RQ*4a: (Tone) Overall, what is the tone of marijuana legalization stories?

*RQ*4b: (Time) How has the tone of marijuana legalization stories changed over time, 1995 through 2014?

*H*2: The tone of newspaper coverage will be more positive in liberal newspapers than conservative newspapers.

*H*3: Neutral tone will be more frequently used in non-opinion articles, while either positive or negative tone will be more frequently used in opinion articles.

The above research questions and hypotheses are analyzed by using a content analysis method, while the below hypotheses are examined by using an experimental design. The current study comprehensively explores the effects of news frames on readers in terms of a cognitive aspect, competitive environments, personal experience, and a mediation model. Because opinions toward medical use of marijuana and marijuana legalization can be different, dependent variables such as attitudes and behavioral intentions are examined with two different aspects. First, this study tests cognitive effects of frames. This study provides respondents one of four news articles including four different types of frames: *legislation, law enforcement, economy*, and *medical* frames. These four frames come from the organizing themes that this study examines. Then, it investigates whether exposure to each frame can influence the way readers think about the issue of marijuana legalization (Kim et al., 2002; Price et al., 1997). For example, it is expected that those exposed to an economy frame will perceive marijuana legalization as an economy issue. That is, respondents will correspondingly recognize marijuana issue as the perceptually congruent issue that each frame presents. The forth hypotheses are predicted:

*H4*a: Respondents who are exposed to the *legalization* frame will recognize the article's theme as a legalization issue.

*H4*b: Respondents who are exposed to the *law enforcement* frame will recognize the article's theme as a law enforcement issue.

*H4*c: Respondents who are exposed to the *economy* frame will recognize the article's theme as an economy issue.

*H4*d: Respondents who are exposed to the *medical* effect frame will recognize the article's theme as a medical frame issue.

Then, the current study explores the effects of news frames on attitudes toward medical marijuana and marijuana legalization. Numerous studies have shown that news frames can influence readers' attitude toward an issue (Borah, 2011a; Chong & Druckman, 2007a, 2007b). As a classic framing test, this study looks at the effects of news frames in a one-sided message design: support versus opposition. In other words, it is examined whether readers exposed to support frames are more likely to support medical marijuana or recreational marijuana than those exposed to opposition frames. Thus, two hypotheses are presented:

*H*5a: (Support vs. Opposition) Respondents who read an article including attributes to support marijuana legalization will be more likely to agree with medical marijuana than those who read an article including attributes to oppose marijuana legalization.

*H*5b: (Support vs. Opposition) Respondents who read an article including attributes to support marijuana legalization will be more likely to agree with

recreational marijuana than those who read an article including attributes to oppose marijuana legalization.

Then, this study tests the effects of news frames with a two-sided message design: mixed frame versus control condition. Previous studies have demonstrated that mixed or two-sided frames showed cancel-out effects (Borah, 2011b; Cobb, 2005; Hansen, 2007; Sniderman & Theriault, 2004). For example, attitudes of readers exposed to a mixed frame may lie at the middle ground between attitudes of those exposed to a support and an opposition frame. Attitudes between a two-sided frame group and a control group will show statistically equivalence. That is, the position of a mixed frame is very similar to the position of a control group. In traditional significance tests, researchers analyze whether mean scores of each variable are significantly different. However, the current study looks at whether mean scores of attitudes between a two-sided frame group and a control group will be statistically equivalent (equivalence tests). Thus, this study predicts these hypotheses:

*H*6a: (Competitive Frame) Respondents who read an article including attributes to both support and oppose marijuana legalization will show a similar agreement with medical marijuana of the control group's position (denoted by statistical equivalence).

*H*6b: (Competitive Frame) Respondents who read an article including attributes to both support and oppose marijuana legalization will show a similar agreement with marijuana legalization of the control group's position (denoted by statistical equivalence).

As a key factor that can influence respondents' attitudes, personal marijuana experience is tested in two different framed conditions: support and opposition frame. Researchers found that prior marijuana use can play an important role in shaping attitudes toward a certain issue (Alvaro et al., 2013; Cho & Boster, 2008). It is expected that those who use marijuana tend to show favorable attitudes toward medical and recreational marijuana legalization than those who do not use marijuana. In addition, there can be a big difference between heavy and light users. Respondents who are more likely to use marijuana (heavy user) will show more favorable attitude regarding marijuana than those who are less likely to use marijuana (light user). Thus, this study examines how marijuana experience can moderate framing effects. This study presents two research questions:

*RQ*5a: (Marijuana experience) Can marijuana experience moderate framing effects on attitude toward medical marijuana?

*RQ*5b: (Marijuana experience) Can marijuana experience moderate framing effects on attitude toward recreational marijuana?

Lastly, the current study explores how attitudes and risk perceptions toward marijuana can mediate the effects of news frames on behavioral intentions to use both medical and recreational marijuana and policy attitude. Certain frames cannot directly affect individuals' behavioral intention or policy attitude. However, this behavioral intention and policy attitude can be influenced by other indirect paths. For example, those exposed to support frame tend to have positive attitudes toward marijuana, and then they are less likely to perceive risks of marijuana. Finally, they are more willing to use marijuana and tend to support marijuana policy. In these processes, the independent

variable is exposure to support frame (X) and the dependent variable are behavioral intention to use medical/recreational marijuana (Y1) and support for medical/recreational marijuana (Y2). Two mediators are presented: the first one is attitude toward medical/recreational marijuana (M1) and the second one is risk perception toward marijuana (M2). Thus, the current study looks at how associations between news frames and behavioral intentions and policy attitude can be mediated by attitudes and risk perceptions toward marijuana. Figure 2.2 shows this conceptual framework. To examine how the associations can be mediated, the current study presents the following research questions:

*RQ*6a: (Behavioral Intention) Can attitude and risk perception mediate associations between news frames and intention to use medical marijuana?

*RQ*6b: (Behavioral Intention) Can attitude and risk perception mediate associations between news frames and intention to use recreational marijuana?

*RQ*7a: (Support for Policy) Can attitude and risk perception mediate associations between news frames and support for medical marijuana?

*RQ*7b: (Support for Policy) Can attitude and risk perception mediate associations between news frames and support for recreational marijuana?

Table 2.1 Marijuana laws in 50 states and DC (February 2017)

Marijuana law	State and DC
Marijuana legalized for medical and recreational use	Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, Washington, and DC (Eight states and DC)
Medical marijuana legalized	Arizona, Arkansas, Connecticut, Delaware, Florida, Hawaii, Illinois, Maryland, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, and Vermont (20 states)
Illegal	Other 22 states

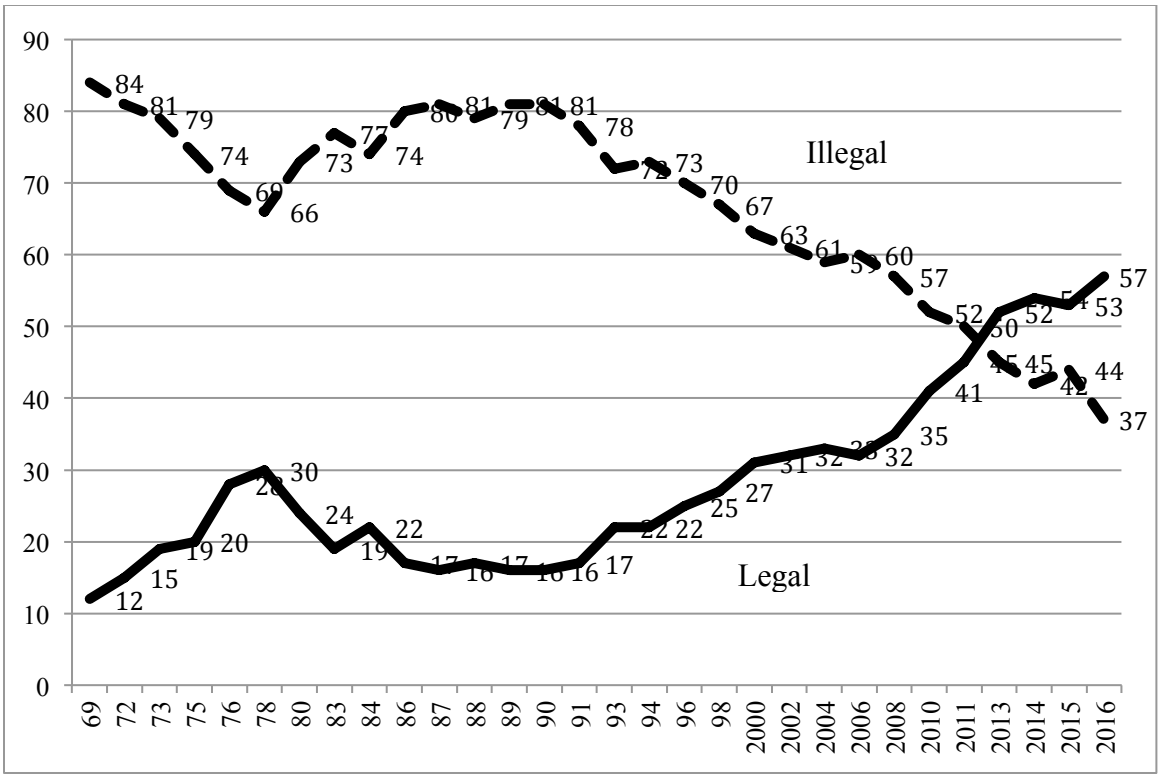

Figure 2.1 Views of legalizing marijuana between 1969 and 2016

(Source: 2010-2016 data from Pew Research Center; 1973-2008 data from General Social Survey; 1960 and 1972 data from Gallup)

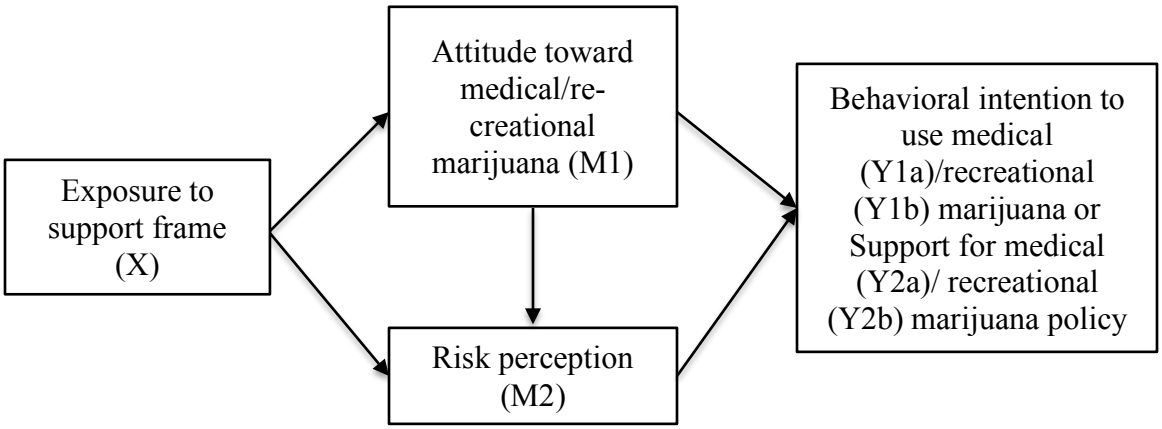

Figure 2.2 Conceptual framework: Mediation model of news frame, attitude, risk perception, and behavioral intention or support for policy

CHAPTER 3

METHODS

This dissertation uses two types of research methods, content analysis and experimental design, to answer research questions and examine hypotheses described in Chapter 2. This chapter first explains how to conduct a content analysis and then provides how to make an experimental design.

3.1. Content Analysis

3.1.1 Sample

In order to examine research questions (RQ1a to RQ4b) and hypotheses (H1a to H3), this study analyzed a total of 10 newspapers published in the United States. As of February 2017, a total of 28 states and DC legalized medical use of marijuana, and eight states – Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, and Washington – and DC have also legalized the recreational use of marijuana. Considering their location, circulation, and political orientation (or presidential endorsement), three categories of newspapers were selected for analysis: national newspapers, newspapers in states where marijuana is illegal, and newspapers in states where medical marijuana is legal. As national newspapers, the *New York Times,* the *Wall Street Journal*, and the *Washington Post* are selected because of their reputation and the role of as an agenda setting paper. In the states where marijuana is legal, the current study examined the *Seattle Times* (Washington), the *Denver Post* (Colorado), and the *San Francisco*

Chronicle (California). In the states where marijuana remains illegal, this study explored the *Dallas Morning News* (Texas), the *Tampa Tribune* (Florida), the *Columbus Dispatch* (Ohio), and the *Tulsa World* (Oklahoma). These newspapers were available at the search databases (the *Lexis-Nexis,* the *News Bank*, and the *Factiva*). According to the 2008 and 2012 presidential endorsements (Peters & Woolley, 2015), liberal newspapers include the *New York Times*, the *Washington Post,* the *Denver Post,* the *Seattle Times,* and the *San Francisco Chronicle,* while conservative newspapers comprise the *Wall Street Journal,* the *Dallas Morning News,* the *Tampa Tribune,* the *Columbus Dispatch,* and the *Tulsa World*.

News articles were retrieved using a key word search of three search engines: the *Lexis-Nexis,* the *News Bank,* and the *Factiva* databases. The keywords "medical marijuana" OR "marijuana use" OR "marijuana legalization" OR "legal marijuana," appearing in the headline or the lead paragraph (HLEAD) of the *Lexis-Nexis* database, in the lead or first paragraph of the *News Bank* database, and in the text of the *Fativa* database were used to find articles of coverage selected for this study between 1995 and 2014. After California initially legalized medical use of marijuana in 1996, issues involved in marijuana legalization or medical marijuana have been highly debated. Thus, the starting year of the analysis is 1995. News articles of the *New York Times*, the *Washington Post*, the *Denver Post*, the *Tampa Tribune*, the *Columbus Dispatch,* and the *Tulsa World* are available in the *Lexis-Nexis* database. News stories of the *Wall Street Journal* can be retrieved from the *Factiva* database. News articles of the other newspapers are available in the *News Bank* database.

This search yielded a total of 4,186 articles from the 10 newspapers, and the current study produced a manageable systematic random sample of about 75 articles from each paper (total $N = 698$). Because the number of articles from the *Columbus Dispatch* and the *Tulsa World* was relatively small, approximately 40 articles from two newspapers were selected. However, this study excluded unrelated stories where marijuana was simply mentioned without being the main focus or where reported marijuana-related crimes. After excluding these unrelated articles, a total of 640 articles were analyzed (See Table 3.1 for a detailed description of the sample).

3.1.2 Coding procedure

The coding instrument was developed through a comprehensive review of news stories and previous studies. A list of coding categories was shown in Table 3.2. Coders first read a story carefully, and then decided an organizing theme of each story by examining what was the main focus. Each story was categorized into one of the eight organizing themes: *legislation, law enforcement, trial, youth drug use, economy, patients, medical effects,* and *others*. When coders found more than two themes in an article, they checked all.

Coders then coded issue attributes. Coders investigated whether a story presented any one or more among the six attributes to support marijuana legalization (*medical benefit, reducing crime, reducing social cost, economic benefit, relieving pain* and *others*) and among the five attributes to oppose marijuana legalization (*medical risk, increasing crime, gateway effect, social ill,* and *others*). Each attribute was coded as "present" or "not present." Any mention to an attribute was coded as only one mention no matter how many mentions were made. In these methods, it was possible to avoid

unnecessarily exaggerating the total number of mentions made of a certain attribute (Kim et al., 2014).

Finally coders coded overall tones of a story. The current study used the way to indicate overall tones examined by the previous studies (e.g., Einsiedel, 1992; Kim et al., 2014). Coders first decided that each paragraph was positive, neutral, or negative towards marijuana legalization or marijuana use. There were three major considerations to look at: (1) what was emphasized in the headline and lead, (2) how the balance or imbalance of the benefits and risks of marijuana legalization or marijuana use were mentioned, and (3) how the metaphors mentioned in each story were related to positive or negative social norms. Coders then decided story tone as an ordinal category by classifying 1 to a negative, 2 to a neutral, or 3 to a positive story. When at least two-thirds of the paragraphs could be considered as either negative or positive, coders selected one of either category. Otherwise, the story was coded as neutral.

3.1.3 Reliability test

Two coders coded articles after having conducted a series of training and pilot-test sessions. Intercoder reliability was calculated by double-coding a random subsample (n = 105 or 16.4%) of the data. Intercoder reliability corrected for agreement by chance (Krippendorff's Alpha) ranged between .73 (*relieving pain*) and 1.00 (*youth drug use, economy, patients*) with an average reliability of .85. Table 3.2 shows an intercoder reliability score of each category.

3.2 Experimental design

3.2.1 Participants

Five hundreds and twenty one undergraduate students at the University of South Carolina were recruited to participate in the current study in April 2016. Students were enrolled in the undergraduate courses from the School of Journalism and Mass Communications, and instructors asked their students to voluntarily join this experiment. Students could participate this study in exchange for extra credit or course credit. Sixty-seven participants were excluded because they did not complete their answers, and 44 participants were excluded because of unreliable responses. For example, attitudes toward medical or recreational use of marijuana were measured by using reverse coding items. Some respondents strongly agreed medical marijuana use should be legalized, and at the same time they strongly agreed medical marijuana use should be prohibited. These inconsistent or contradictory answers were excluded. In total, 410 participants' answers were analyzed. Students were informed that their participation was voluntary and their answers would not be identified. Participants' average age was 20.38 (*SD* = 1.72). Of this sample, approximately 72% were female, and the great majority (85.1%) was White (African Americans = 8.0%, Hispanics = 2.2%, Asians = 2.0%, and others = 2.7%).

3.2.2 Design and procedure

The current study involved a between-subjects experimental design. Participants who received an email linked to the stimuli and questionnaire could participate in the online experiment platform provided by the survey firm, *Qualtrics* (www.qualtrics.com). The current study included two sets of studies and stimuli. After respondents who were exposed to the first set of stimuli answered the first set of questionnaire (Study 1), they

were exposed to the second set of stimuli (Study 2) within the same experimental design. The first stimuli involved four news articles including one of four themes: *legislation, law enforcement, economy*, and *medical effect* (Study 1) First, participants were randomly assigned to one of these four conditions. After reading one of four news articles, the Study 1 examines whether they perceived the topic of marijuana legalization in a manner that reflects the organizing themes used to construct the experimental stimuli (e.g., as an issue for law enforcement, the medical community, etc.). Then, participants read the second set of stimuli (Study 2), which had one of four news articles including one of three issue attributes or a control condition.[1] Participants who were exposed to the first set of stimuli were randomly allocated to one of four conditions in the second set of stimuli. After reading one of four news articles, they answered four categories of questions: attitude questions, risk perception questions, behavioral intention to use medical/recreational marijuana questions, and policy attitude toward medical/recreational marijuana questions. The questionnaire also included a series of demographic questions.

3.2.3 Stimulus materials

This study presented two sets of stimuli to test hypotheses: the first set of stimuli including organizing themes (Study 1: H4) and the second set of stimuli including issue attributes (Study 2: H5a to H6b and RQ5a to RQ7b). The full set of articles is appended. The first set of experimental stimuli consisted of four news articles, which discussed one of four organizing themes about marijuana legalization: *legislation, law enforcement, economy*, and *medical effect*. These news stories were retrieved from the *New York Times*

[1] In this dissertation, three frame conditions and a control condition were analyzed. However, one more frame condition was used for the first time. This additional condition contains the frame that highlights public opinion poll results. For future research, this frame condition will be used.

website, and then screenshots from the *New York Times* website were used to develop the stimuli materials.

The stimulus article for the *legislation* theme (n = 105) was retrieved from "Congress and Obama are too timid on marijuana reform" by The Editorial Board, published in August 8, 2015. The stimulus contained top three paragraphs. This article highlighted the legislative procedure associated with marijuana prohibition. In the *law enforcement* theme condition (n = 106), the headline read "New York State's medical marijuana rules shaping up as unusually restrictive" by Jesse McKinley and Catherine Saint Louis, published in March 29, 2015. This stimulus included top six paragraphs, and focused on the regulations related to medical marijuana rules in New York State. The *Economy* theme condition (n = 97) carried the headline, "Legal marijuana sales hit $5.4 billion in 2015, report says" by Chritine Hauser, published in February 4, 2016. This stimulus shows top six paragraphs, and emphasized the economic effect of marijuana legalization. In the *medical effect* theme condition (n = 102), the headline read "How 'medical' is marijuana?" by Aaron E. Carroll, published in July 20, 2015. The top five paragraphs were captured for this stimulus, which highlighted the medical effect of marijuana.

The second stimuli contained four news articles including issue attributes about marijuana legalization and a control condition.[2] For these stimuli, a format was adapted from the *New York Times* website. However, each news story was differently operationalized. That is, news content was retrieved and rearranged from various news

[2] As mentioned earlier, one additional frame condition is not used in this dissertation. Thus, the total number of respondents is 328, not 410, because 82 respondents were exposed to an additional condition.

articles in the *New York Times*. Except for the stimulus article of the control condition, each news story had the same lead paragraph and the same news writer name (Rick Lyman). However, each headline was not the same, and different stories were presented from the second paragraph.

For example, the headline in the support frame condition (n = 84) was, "Marijuana use should be legalized," reporting issue attributes to support marijuana legalization. This stimulus story showed pro-legalizing reasons including medical effects, economic benefits, and undermining cartels' power. Second, in the opposition frame condition (n = 82), the headline read, "Marijuana use should not be legalized." This stimulus article focused on issue attributes to oppose marijuana legalization such as medical risks, increases of crime, the likelihood of car accidents, and poor school performance. Third, the stimulus article for the two-sided (mixed) frame condition (n = 83) was composed of both issue attributes to support and oppose marijuana legalization. The headline was, "Pivotal point is seen as more states consider legalizing marijuana." To examine the effect by the order, two types of articles were randomly presented: in one article, pro-legalizing attributes were first reported, while in another article, anti-legalizing attributes were first provided. Tests were conducted to determine whether an order of issue attributes contributed significantly to explaining attitudes toward medical marijuana and marijuana legalization as dependent variables. No significant effects were detected (attitude toward medical marijuana, t = -.425, p = n.s.; attitude toward marijuana legalization, t = -.123, p = n.s.). Lastly, in the control condition (n = 79), the headline read, "Hillary Clinton wins South Carolina primary." This stimulus article did not contain any issue attributes associated with marijuana legalization.

3.2.4 Measures

The current study examines how various news frames can influence participants' cognition and the way they think about the issue of marijuana legalization. By exploring the causal relationships between news frames and behavioral intention and policy attitude, this study investigates the mediating effects of attitudes and risk perceptions toward marijuana. Independent variables include an exposure to each news frame condition: news articles including one of four organizing themes in the first experiment, and news articles including one of four issue attributes or a news article in the control condition in the second experiment. In the first experiment, dependent variables consist of how to cognize the theme that participants read and how they perceived the issue of marijuana legalization. In the second experiment, dependent variables include attitudes toward medical marijuana and marijuana legalization, behavioral intentions to use medical marijuana and recreational marijuana, and policy attitudes toward medical marijuana and recreational marijuana. Risk perception serves as a mediating variable when examining the relationship between news frames and dependent variables. In addition, this study asked the following demographic variables: age, gender, and political orientation. Table 3.3 summarizes means, standard deviations, Pearson's *r*, and Cronbach's alpha for the variables.

Socio-demographic factors. Age, gender, ethnicity, and political orientation served as socio-demographic factors. *Age* was measured as a continuous variable. Participants ranged in age from 18 to 35, with a mean age of 20.41 (*SD* = 1.72). *Gender* was a dichotomous variable with male coded as "1" and female coded as "2" (male = 28.1%). For *ethnicity*, participants were asked to indicate, "Which of the following best

describes your ethnicity? White/Caucasian, African American, Latino, Asian, or Other." Their ethnicity was 84.5% White, 8.8% African American, 2.1% Latino, 1.9% Asian, and 2.8% Other. For *political orientation*, participants were asked to indicate their level agreement with the following two statements on a seven-point scale (1 = strongly disagree; 7 = strongly agree): "I would describe my political views as liberal" and "I would describe my political view as conservative." Reverse coding was performed in answers from the second statement. A mean score of political orientation was 4.02 (SD = 1.88, Pearson's $r = .83$, $p < .001$).

Marijuana use. To measure personal marijuana experience, this study first indicated that this questionnaire would be only for the scholarly purpose and participants' responses would be kept confidentially. Then, on a nine-point scale (1 = I have never used, 2 = I have used marijuana in the past, but I quit, 3 = less than once a month, 4 = once a month, 5 = 2-3 times a month, 6 = once a week, 7 = 2-3 times a week, 8 = 4-5 times a week, 9 = almost daily), respondents were asked how frequently they personally use marijuana. A mean score of marijuana use was 3.21 (SD = 2.50).

The way of thoughts about marijuana legalization. First, participants read the given articles including one of four organizing themes. Then, they read the following statement, "This set of items asks you what kinds of an issue is marijuana legalization or marijuana use." On a seven-point scale (1 = strongly disagree; 7 = strongly agree), respondents were asked how much they agreed with the following four statements: "Marijuana legalization or marijuana use is 1) a legislation issue, 2) a law enforcement or regulation issue, 3) an economy issue, and 4) a medical effect or health science issue."

Attitude toward marijuana. Attitude was operationalized at two aspects: attitude toward medical use of marijuana and attitude toward recreational use of marijuana. Before answering this variable, participants were exposed to second stimuli articles. A news article that was randomly assigned included one of three issue attributes about marijuana legalization (support frame, opposition frame, and two-sided frame) or a control condition. *Attitude toward medical use of marijuana* was measured with two items, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agreed with the following statements: 1) "Medical marijuana use should be legalized" and 2) "Medical marijuana should be prohibited." Reverse coding was performed in the second statement. Responses on two items were combined and averaged into a composite measure ($M = 5.25$, $SD = 1.60$, Pearson's $r = .85$, $p < .001$). *Attitude toward recreational use of marijuana* was also assessed with two items, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agreed with the following statements: 1) "Recreational marijuana use should be legalized" and 2) "Recreational marijuana use should be prohibited." Responses on two items (reverse coding for the second statement) were combined and averaged into a composite measure ($M = 4.51$, $SD = 1.75$, Pearson's $r = .89$, $p < .001$).

Risk perception. This variable was measured with five items, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agreed with the following statements: 1) "Marijuana may cause medical risks such as cancer, impaired mental health, and respiratory problems," 2) "Marijuana use can lead to an increase in illicit-drug related crimes," 3) "Marijuana use can lead to an increased likelihood of using other drugs in the future," 4) "Marijuana can cause social ills including abuse automobile

crashes, and tardiness in the workplace," and 5) "Marijuana may pose risks to humans." A composite index of risk perception was constructed by averaging the five items (M = 4.18, SD = 1.45, α = .90).

Behavioral intention. This variable was operationalized at two aspects: behavioral intention to use medical marijuana and behavioral intention to use recreational marijuana. *Behavioral intention to use medical marijuana* was measured with a single item, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agreed with the following statement: "If the state (SC) allows for medical use of marijuana, I may use medical marijuana" (M = 3.55, SD = 2.05). *Behavioral intention to use recreational use of marijuana* was assessed with a single item, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agreed with the following statement: "If the state (SC) allows for recreational use of marijuana, I may use recreational marijuana" (M = 3.99, SD = 2.17). Higher scores indicate higher levels of behavioral intention to use medical marijuana and recreational marijuana.

Policy attitude. This variable was also constructed at two aspects: support for medical marijuana policy and support for marijuana legalization policy. To measure *support for medical marijuana policy*, participants were asked the extent to which (1 = strongly disagree; 7 = strongly agree) they agree with the following statement: "I support that marijuana should be legalized for medical use" (M = 5.49, SD = 1.56). *Support for marijuana legalization policy* was assessed with a single item, asking the participants how much (1 = strongly disagree; 7 = strongly agree) they agree with the following statement: "I support that marijuana should be legalized for recreational use as well as

medical use" (M = 4.56, SD = 1.85). Higher scores reveal higher levels to support for medical marijuana policy and marijuana legalization policy.

3.3 Analytic Strategy

SPSS 22.0 was used to analyze the data. When it comes to content analysis, a Chi-Square test and t-test were used. A series of Chi-Square tests were used to examine research questions (RQ1a to RQ4b) and hypotheses (H1a, H1b, & H3). In addition, a series of McNemar's Chi-Square tests were used to explore whether the difference between variables was statistically significant or not. A t-test was used to investigate a hypothesis (H2).

To test experimental designs, a series of one-way ANOVA (Analysis of Variation) were performed (H4a to H4d). Furthermore, post hoc comparisons were made by using Dunnet's test. That is, as the one-tailed post-hoc analyses, this study compared the focal frame with all other conditions in order to formally test the hypotheses. For example, a directional test of whether the legalization frame condition has a larger mean value relative to the other frame conditions (e.g., *law enforcement, economy,* and *medical effect* frame conditions) involves three comparisons: *legalization* versus *law enforcement, legalization* versus *economy, and legalization* versus *medical effect*.

The current study consecutively employed the first set of stimuli (four organizing themes: *legalization, law enforcement, economy,* and *medical effect*) and the second set of stimuli (four frames: support, opposition, two-sided, and control). Thus, after respondents read the first set of stimuli, and then they read the second set and answered the following questions. It means that respondents' answers could be influenced by the first set of stimuli. Exposure to the first set of stimuli can co-vary with the dependent

variables. In order to control for this effect, the current study included exposure to the first set of stimuli as a covariate (control variable). That is, this study used dummy coding as covariates. As a *legalization* covariate, for example, respondents who read the article including a *legalization* frame was coded as one, while others were coded as zero. In the same way, as a *law enforcement* covariate, respondents who read the article including a *law enforcement* frame were coded as one, while others were coded as zero.

To examine H5a and H5b, this study used the Analysis of Covariance (ANCOVA). This is conducted to test the framing effects on attitudes toward medical/recreational marijuana, controlling for the effects of exposure to the first set of stimuli, which can co-vary with attitudes toward medical/recreational marijuana. In addition, post hoc comparisons were made by using Tukey's HSD. Tukey's HSD was used because this approach could test for pairwise comparisons while controlling type I error and making confidence intervals (Wrench, Thomas-Maddox, Richmond, & McCroskey, 2016).

As for H6a and H6b, this study conducted *equivalence tests* using Lakens (2017) TOSTER statistical package in Jamovi (Version 7.3.4; jamovi.org). The null hypothesis is that there is no significant difference between groups or the true effect size is zero. In traditional significance tests, the null hypothesis is true when a p value is larger than the α level (e.g., $p > .05$). If they want to claim that there is no effect that is large enough to be worthwhile to explore, statistical equivalence tests should be conducted, instead of traditional significance tests (Lakens, 2017). This study examines that the true effect size is zero between a mixed frame group and a control group. That is, respondents who are exposed to a mixed frame and a control stimulus will equally show their attitudes toward

medical marijuana and marijuana legalization. Thus, as one of simple equivalence testing approaches, Two One-Sided Tests (TOST) procedures are conducted (Lakens, 2017).

To examine RQ5a and RQ5b, the current study used the bootstrapping approach outlined by Hayes and Preacher (2013) to explore the moderating associations as proposed in the models. This study explores how individual marijuana experience can moderate the relationships between exposure to support frame and attitudes toward medical/recreational marijuana. This analysis followed PROCESS Model 1 in Hayes and Preacher (2013). As an independent variable, exposure to opposition frame was dummy coded. That is, support frame was coded as one, and opposition frame was coded as zero. In addition, control variables, such as gender, age, political stance, and exposure to the first set of stimuli, served as the covariates in the analysis. Also, PROCESS Model analysis by Hayes and Preacher (2013) produced unstandardized regression coefficients. Thus, all variables were transformed into *z*-scores in this analysis.

Lastly, this study also used the bootstrapping approach outlined by Hayes and Preacher (2013) to explore the mediating relationships as proposed in the models (RQ6a to RQ7b). The purpose of this analysis was to examine how exposure to support frame (X) was associated with behavioral intention to use medical/recreational marijuana (Y1) and policy attitude toward medical/recreational marijuana (Y2) via attitude toward medical marijuana and recreational marijuana (M1) and risk perception toward marijuana use (M2). As the two mediators (M1 and M2) involved causal orderings and also were connected in sequence, the analysis followed PROCESS Model 6 in Hayes and Preacher (2013). Likewise, exposure to support frame was dummy coded. Gender, age, political

stance, and exposure to the first set of stimuli served as the covariates. All variables were transformed into *z*-scores in this analysis as well.

Table 3.1 Description of the sample

Newspaper	Articles with keywords	Final number of articles analyzed
National		
The New York Times	455	73
The Wall Street Journal	454	69
The Washington Post	344	74
Sub-total	1253	216
States where medical marijuana is legal		
The Denver Post (CO)	690	80
The Seattle Times (WA)	824	67
The San Francisco Chronicle (CA)	666	72
Sub-total	2180	219
States where marijuana is illegal		
The Dallas Morning News (TX)	289	66
The Tampa Tribune (FL)	218	65
The Columbus Dispatch (OH)	113	35
The Tulsa World (OK)	133	39
Sub-total	753	205
Total	4186	640

Keywords used: “marijuana legalization” OR “medical marijuana” OR “legal marijuana” OR “marijuana use”

Note: Conservative newspapers (n = 274) comprise the *Wall Street Journal,* the *Dallas Morning News,* the *Tampa Tribune,* the *Columbus Dispatch,* and the *Tulsa World*. Liberal newspapers (n = 366) include the *New York Times*, the *Washington Post,* the *Denver Post,* the *Seattle Times,* and the *San Francisco Chronicle,*

Table 3.2 Coding categories and intercoder reliability

Frame	Krippendorff's alpha
Organizing theme	
Legislation: The story focuses on the legislative proceedings regarding marijuana use. This theme highlights the conflicts between the governor and state legislature.	.85
Law enforcement: The story focuses on law enforcement, operating procedures, regulations, controls, or actions about marijuana use.	.79
Trial: The story focuses on marijuana-related trials such as selling marijuana to minors and postponement of trial.	.84
Youth drug use: The story focuses on the marijuana use of teenagers.	1.00
Economy: The story presents marijuana legalization focused on tax and economic effects such as new employments and revitalizing regional economies.	1.00
Patients: The story highlights patients' story about marijuana use. This theme mainly involves compassion or plight of patients and their family.	1.00
Medical effects: The story focuses on the debates with regard to medical effects or benefits of marijuana. Also, the story focuses on scientific research. Mostly this frame reports medical marijuana research.	.83
Others	.80
Issue attributes to support	
Medical benefit: Marijuana has therapeutic value in treating a variety of symptoms including appetite loss, nausea, chronic pain, anxiety, sleeping disorder, and intraocular pressure.	.90
Reducing crime: Marijuana legalization can lead to reducing crimes associated with illicit drugs, and also increase safety in communities.	.80
Reducing social cost: Marijuana legalization can lead to reducing	.74

social cost such as jail and enforcement.	
Economic benefit: Marijuana legalization can lead to increasing tax revenues and reduce the price of marijuana because legalization would move the trade into the open market.	.81
Relieving pain: The story focuses on the humane aspects of patients or family because they suffered a severe pain.	.73
Others (S)	1.00
Issue attributes to oppose	
Medical risk: There is no scientific evidence about medical marijuana benefits. Marijuana has no therapeutic value.	.80
Increasing crime: Marijuana legalization can lead to increases in illicit-drug related crimes and endanger our society.	.94
Gateway effect: Marijuana legalization can lead to increased likelihood of future hard drug use. Legalization makes available to all users, especially youths.	.77
Social ill: Marijuana legalization can lead to a variety of social ills including abuse, automobile crashes, and adverse education and employment outcomes.	.82
Others (O)	.80
Story tone: Negative, Neutral, or Positive	.80

Table 3.3 Descriptive statistics of key variables and reliability coefficients ($N = 410$)

Variable	Questions	M	SD	Reliability
Socio-demographic factors	Age	20.38	1.72	
	Gender: Male = 28.5% (117), Female = 71.5% (293)			
	Ethnicity: White = 85.1% (349), Black = 8.0% (33), Hispanic = 2.2% (9), Asian = 2.0% (8), Other = 2.7 % (11)			
	Political orientation	4.06	1.88	$r = .83^{*}$
Marijuana use	User = 55.1% (226), Non-user = 44.9% (184)	3.21	2.50	
Study 1: Theme	*Recognizing the issue in the article as … theme*			
	Legislation	4.06	1.84	
	Law enforcement	3.85	1.88	
	Economy	3.76	2.05	
	Medical effect	3.67	2.07	
	The way of thoughts about marijuana legalization			
	Legislation	5.01	1.40	
	Law enforcement	4.62	1.62	
	Economy	4.47	1.72	
	Medical effect	4.77	1.79	
Study 2:	Attitude toward…			
Attribute ($N = 328$)	Medical use of marijuana	5.25	1.60	$r = .85^{*}$
	Recreational use of marijuana	4.51	1.75	$r = .87^{*}$
Risk perception		4.18	1.45	$\alpha = .90$
($N = 328$)	Marijuana may cause medical risks	3.67	1.79	
	Marijuana use can lead to an increase in illicit-drug related crimes	4.06	1.70	
	Marijuana use can lead an increased likelihood of using other drugs	4.48	1.72	
	Marijuana can cause social ills	4.54	1.70	
	Marijuana may pose risks to humans	4.13	1.65	

Behavioral intention			
(N = 328)	To use medical marijuana	3.55	2.05
	To use recreational marijuana	3.99	2.17
Policy attitude			
(N = 328)	Support for medical marijuana	5.49	1.56
	Support for marijuana legalization	4.56	1.85

* $p < .001$

CHAPTER 4

FINDINGS

This chapter begins reporting the findings from the content analysis with regard to how newspapers presented the issue of marijuana legalization. This chapter then shows the results from the experimental designs when it comes to cognitive framing effects, classic framing effects, competitive framing effects, and the effects of marijuana experience. Lastly, findings of the mediation modeling are presented.

4.1 News Frames of Marijuana Legalization

4.1.1 Findings from the analysis of organizing themes

The first research question (RQ1a) examined the major themes to organize news coverage of marijuana legalization. As Table 4.1 shows, newspapers were most likely to present marijuana legalization as a *law enforcement* theme. This frame appeared in about one out of three articles (33.4% or $n = 214$). Approximately 31 percent of articles ($n = 200$) described marijuana legalization as a *legislation* theme. However, a McNemar's chi-square test indicated that the difference between a *law enforcement* theme and a *legislation* theme was not statistically significant ($\chi^2 = .442$, $p = .506$). The next frequent themes were a *trial* theme (11.9%), an *economy* theme (10.2%), a *medical effect* theme (9.8%), a *youth drug use* theme (8.1%), and a *patients* theme (3.6%). A legislation theme was more often presented in the *Tampa Tribune* and the *Columbus Dispatch*, while a *law enforcement* theme was more frequently used in the *Denver Post* and the *San Francisco*

Chronicle. The *New York Times* and the *San Francisco Chronicle* more often described this issue as a *trial* theme. A *youth drug use* theme was often used in the *Dallas Morning News*, while an *economy* theme was frequently presented in the *Wall Street Journal* and the *Denver Post*. Lastly, the *New York Times* and the *Columbus Dispatch* more often reported the issue as a *patients* theme, while the *San Francisco Chronicle*, the *Dallas Morning News*, and the *Columbus Dispatch* more repeatedly organized this issue as a *medical effect* theme.

RQ1b addressed how organizing themes have changed over the presidential periods (1995 to 2014). Figure 4.1 shows the percentages of articles presenting specific organizing themes. Newspapers presented more often a *legislation* theme during the first Bush administration period (2001 to 2004) and the second Obama administration period (2013 to 2014) compared to other presidential periods ($\chi^2 = 16.148$, $p < .01$). A *law enforcement* theme was significantly and frequently reported during the first Clinton administration period (1995 to 1996), the second Bush administration period (2005 to 2008), and the first Obama administration period (2009 to 2012) ($\chi^2 = 14.075$, $p < .05$). Newspapers more often showed a *trial* theme during the Bush administration period ($\chi^2 = 54.417$, $p < .001$). A *youth drug use* theme was highly discussed during the Clinton administration period (1995 to 2000) ($\chi^2 = 54.417$, $p < .001$). On the contrary, an *economy* theme was chiefly debated during the Obama administration period (2009 to 2014) ($\chi^2 = 48.888$, $p < .001$). A *medical effect* theme was significantly and frequently presented during the second Clinton administration period (1997 to 2000) ($\chi^2 = 19.114$, $p < .01$). Thus, organizing themes were differently presented according to each presidential period.

4.1.2 Findings from the analysis of issue attributes

RQ2a explored the question of which attributes of marijuana legalization have appeared more frequently than others (Table 4.2). When it comes to the reasons to support marijuana legalization, *medical benefit* was the most often mentioned attribute (32.3%, $n = 207$). A series of McNemar's tests indicated that the mention of *medical benefit* was significantly more often than the mentions of *economic benefit* (8.6%, $\chi^2 = 94.219$, $p < .001$), *relieving pain* (6.7%, $\chi^2 = 144.397$, $p < .001$), *reducing social cost* (6.4%, $\chi^2 = 115.360$, $p < .001$), and *reducing crime* (2.2%, $\chi^2 = 168.329$, $p < .001$). With regard to the reasons to oppose marijuana legalization, *medical risk* was mentioned most frequently appearing in 19.2% ($n = 123$) of the stories. A series of McNemar's tests confirmed that *medical risk* appeared significantly more often than *social ill* (13.6%, $\chi^2 = 8.167$, $p < .01$), *gateway effect* (10.2%, $\chi^2 = 22.880$, $p < .001$), and *increasing crime* (5.5%, $\chi^2 = 52.563$, $p < .001$). The *New York Times*, the *San Francisco Chronicle*, and the *Tampa Tribune* presented more often *medical benefit*, while the *Wall Street Journal*, the *Washington Post*, the *Dallas Morning News*, and the *Tulsa World* mentioned more frequently *medical risk*. The *New York Times* reported more often *reducing social cost* and *economic benefit* as reasons to support marijuana legalization, while the *Wall Street Journal* indicated more repeatedly *social ill* as a reason to oppose. *Gateway effect* and *social ill* were more often mentioned in the *Dallas Morning News* and the *Tampa Tribune*.

RQ2b investigated how issue attributes have changed over the presidential periods, 1995 through 2014. Figure 4.2 illustrates the percentages of news stories mentioning issue attributes to support and oppose marijuana legalization. First,

concerning attributes to support marijuana legalization, newspapers significantly and frequently presented *medical benefit* during the Bush administration period (2001 to 2008) ($\chi^2 = 22.583$, $p < .001$). *Reducing social cost* was highly discussed during the first Bush administration period (2001 to 2004) and the first Obama administration period (2009 to 2012) ($\chi^2 = 20.314$, $p < .01$). *Economic benefit* was mainly reported during the Obama administration period (2009 to 2014) ($\chi^2 = 24.478$, $p < .001$). However, other reasons to support were mentioned without changes according to the presidential periods ($p > .05$).

Next, when it comes to attributes to oppose marijuana legalization, newspapers more often mentioned *increasing crime* during the Obama administration period (2009 to 2014) ($\chi^2 = 12.323$, $p < .05$). *Social ill* was chiefly presented during the first Clinton administration period (1995 to 1996) and the second Obama administration period (2013 to 2014) ($\chi^2 = 13.134$, $p < .05$). Other reasons to oppose were reported without changes over the presidential periods ($p > .05$).

In order to test H1a and H1b, a series of comparisons were made between conservative and liberal newspapers (Table 4.3). H1a and H1b predicted that conservative newspapers would be more likely to mention the reasons to oppose marijuana legalization, while liberal newspapers would be more likely to report the reasons to support marijuana legalization. To explore these hypotheses, issue attributes to support or oppose marijuana legalization were combined. Each combined attribute contains at least one or more reasons to support or oppose marijuana legalization. As for H1a, 44.2% of the conservative newspapers stories contained the reasons to oppose marijuana legalization, while 29.8% of the liberal newspapers articles mentioned the

attributes. This difference was statistically significant ($\chi^2 = 14.072$, $p < .001$). Thus, H1a was supported. When it comes to H1b, the reasons to support marijuana legalization, when combined, were mentioned in a total of 128 articles from the conservative newspapers (46.7%) and in a total of 169 stories from the liberal newspapers (46.2%). This difference was not statistically significant ($\chi^2 = .018$, p = n.s.). Therefore, H1b was not supported.

RQ3 asked how often two-sided frame and one-sided frame appeared in the news stories. As Table 4.3 shows, 20.5% (n = 131) presented the reasons to both support and oppose marijuana legalization, while 41.4% (n = 265) reported the reasons to either support or oppose marijuana legalization. The *New York Times* and the *Dallas Morning News* presented two-sided arguments more often than other newspapers. The *Tulsa World* and the *Columbus Dispatch* reported one-sided arguments more frequently than other newspapers.

4.1.3 Findings from the analysis of story tone

RQ4a examined whether marijuana legalization stories have been largely negative or positive. Table 4.5 shows that among the 640 articles, 27% (n = 173) were coded as positive; 17.7% (n = 113) were negative; and more than half (55.3% or n = 354) were neutral. The *New York Times*, the *Seattle Times*, and the *Columbus Dispatch* were more likely to describe the issue of marijuana legalization as a positive tone, while the *Wall Street Journal*, the *Dallas Morning News*, the *Tulsa World*, and the *Columbus dispatch* tended to present the issue as a negative tone. Interestingly, the *Denver Post* and the *San Francisco Chronicle*, published in the states where medical marijuana is allowed, more often reported the issue as a neutral tone.

RQ4b looked at how the tone of marijuana legalization has changed over the presidential periods, 1995 through 2014. Figure 4.3 shows the percentages of story tone according to the presidential periods. News articles with a negative tone were more likely to be reported during the Clinton administration period (1995 to 2000) and the second Obama administration period (2013 to 2014). On the other hand, stories with a positive tone were frequently presented during the second Clinton administration period and the Bush administration period (1997 to 2008) A chi-square test indicated this pattern was significantly different according to the presidential periods ($\chi^2 = 25.120$, $p < .01$).

When it comes to H2, a comparison between the liberal and conservative newspapers has made. Findings indicated that a positive story tone was more often used in the liberal newspapers ($M = 2.21$, $SD = .59$) than in the conservative newspapers ($M = 1.94$, $SD = .73$). This difference was statistically significant ($t = 5.25$, $p < .001$), supporting H2.

H3 predicted that a neutral tone would be more dominant in non-opinion articles, while either a positive or a negative tone would be more prevalent in opinion articles such as editorials and op-eds. Table 4.6 shows that about two-third of non-opinion articles (67%) described the issue of marijuana legalization as a neutral tone, while only 27.5% of opinion articles reported the issue as a neutral tone. This difference is statically significant ($\chi^2 = 83.907$, $p < .001$), supporting H3.

4.2 Framing Effects

4.2.1 Manipulation check

To assess whether participants who were exposed to each organizing theme (*legislation, law enforcement, economy*, and *medical effect*) would be able to recognize

the article's theme, a manipulation check was conducted. Participants were randomly assignment to one of four conditions. They read the given article, and then were guided to read the following statement: "The news article you read highlights a certain aspect about the issue of marijuana legalization. Remind the news article you read and think about the main theme of the news article." On a seven-point scale (1 = strongly disagree; 7 = strongly agree), respondents were asked how much they agreed with the following four statements: "This article focuses on the 1) legislative proceedings, 2) regulations, law enforcement, and controls, 3) economic effects, and 4) medical effects about marijuana legalization."

For a manipulation check, a series of ANOVAs were performed (Table 4.7). In addition, post hoc comparisons were made by using Dunnet's tests. First, concerning a *legislation* theme, Dunnet's tests showed that participants who were exposed to the *legislation* condition were more likely to recognize the article as a *legislation* frame than as a *law enforcement* frame (*mean difference* = .62, *SE* = 23, $p < .01$), an *economy* frame (*mean difference* = 1.88, *SE* = 23, $p < .001$), and a *medical effect* frame (*mean difference* = 2.07, *SE* = 23, $p < .001$). Second, post hoc comparisons revealed that respondents in the *law enforcement* condition tended to significantly recognize the organizing theme as a *law enforcement* frame than as a *legislation* frame (*mean difference* = 1.06, *SE* = 23, $p < .001$), an *economy* frame (*mean difference* = 2.18, *SE* = 23, $p < .001$), and a *medical effect* frame (*mean difference* = 2.29, *SE* = 23, $p < .001$). Third, Dunnet's tests showed that participants who read the frame with an *economy* frame were more likely to significantly recognize the article as an *economy* frame than as a *legislation* theme (*mean difference* = 1.75, *SE* = .23, $p < .001$), a *law enforcement* frame (*mean difference* = 3.13,

SE = 23, $p < .001$), and a medical effect frame (*mean difference* = 3.15, *SE* = 23, $p < .001$). Lastly, post hoc comparisons also yielded that participants in the *medical effect* condition tended to significantly perceive the frame as a *medical effect* theme than as a *legislation* theme (mean difference = 1.75, *SE* = .23, $p < .001$), a *law enforcement* frame (*mean difference* = 2.63, *SE* = 22, $p < .001$), and an *economy* frame (*mean difference* = 3.06, *SE* = 23, $p < .001$). The findings offer evidence that the manipulated content was perceived in a manner consistent with the conceptual basis underlying each frame's operationalization. Thus, this manipulation check showed successful manipulation for recognizing the article's frame.

According to O'Keefe (2003), when the effect of a message variation on a persuasive outcome is examined, it is unnecessary to conduct message manipulation check. The second set of experimental stimuli can be applicable to this case. In this set, for example, the current study explores how support, opposition, and two-sided frames can produce differences in attitudes toward marijuana legalization. That is, this simply compares the effect of the different news frames (or different message conditions) on the outcome variables (or attitudes toward marijuana legalization). Thus, no manipulation check was conducted in the second set of stimuli (Study 2).

4.2.2 Findings from the analysis of the way of thoughts on marijuana legalization

The ANOVA results indicated the significant main effect of different news stories on how participants think about each theme significantly (Table 4.8). To examine H5, Dunnet's tests were made across four experimental conditions (*legislation, law enforcement, economy*, and *medical effect*). First, concerning a *legislation* theme, post hoc comparisons using Dunnet's t showed that the difference between the *legislation*

condition and the *law enforcement* condition was significantly different (*mean difference* = .46, *SE* = .19, $p < .05$). Also, the *legislation* condition comparing with the *economy* condition (*mean difference* = .81, *SE* = .19, $p < .001$) and the *medical effect* condition (*mean difference* = .67, *SE* = .19, $p < .01$) showed significant differences. Thus, H4a was supported. Second, with regard to a *law enforcement* theme, Dunnet's t test revealed the insignificant difference between the *law enforcement* condition and the *legislation* condition (*mean difference* = -.07, *SE* = .22, *p* = n.s.). However, the difference between the *law enforcement* condition and the *economy* condition (*mean difference* = .49, *SE* = .22, $p < .05$) and the difference between the *law enforcement* and the *medical effect* condition (*mean difference* = .61, *SE* = .22, $p < .01$) were significant. Therefore, H4b was not supported. Third, when it comes to an *economy* theme, Dunnet's t tests indicated that participants who read a news article with an *economy* theme tended to significantly think marijuana legalization is an *economy* issue than as a *legislation* theme (mean difference = .89, *SE* = .24, $p < .001$), a *law enforcement* theme (*mean difference* = .95, *SE* = .24, $p < .001$), and a *medical effect* theme (*mean difference* = 1.18, *SE* = .24, $p < .001$). Thus, H4c was supported. Lastly, post hoc comparisons using Dunnet's t tests showed the significant differences between the *medical effect* condition and the *legislation* condition (*mean difference* = .75, *SE* = .23, $p < .01$), between the *medical effect* condition and the *law enforcement* condition (*mean difference* = .62, *SE* = .24, $p < .05$), and between *medical effect* condition and the *economy* condition (*mean difference* = 1.48, *SE* = .24, $p < .001$). Therefore, H4d was supported.

4.2.3 Findings from the analysis of classic framing effects

The current study examines the effects of news frames (support vs. opposition) on attitudes toward medical marijuana and marijuana legalization. H5a and H5b predicted that participants who read a news article including attributes to support marijuana legalization would be more likely to agree with medical marijuana use or marijuana legalization than those who read a news article including attributes to oppose marijuana legalization. As mentioned above, this study conducted the ANCOVA to control for the effects of exposure to the first set of stimuli (*legalization, law enforcement, economy,* and *medical effect* frame condition). Table 4.9 and Table 4.10 show the mean scores and the standard deviation values regarding levels of support for medical marijuana use and marijuana legalization across each condition. Also these tables indicate *F* values when each covariate was entered into the analysis. Figure 4.4 also displays mean scores of attitudes toward medical and recreational marijuana across four conditions. The ANCOVA results revealed the significant main effects of each news article on participant's support for medical marijuana and participants' support for recreational marijuana even after controlling for exposure to each covariate (See Table 4.9 and Table 4.10).

To investigate H5a and H5b, post hoc comparisons using Tukey's HSD were used. First, a Tukey's HSD tests showed that participants who read a news article including attributes to support marijuana legalization were more likely to agree with medical marijuana use than those who read a news article including attributes to oppose marijuana legalization significantly (covariate = legalization, *mean difference* = 1.33, *SE* = .24, $p < .001$; covariate = law enforcement, *mean difference* = 1.32, *SE* = .24, $p < .001$;

covariate = economy, *mean difference* = 1.32, *SE* = .24, $p < .001$; covariate = medical effect, *mean difference* = 1.32, *SE* = .24, $p < .001$), supporting H5a. In addition, post hoc comparisons indicated that participants in the support condition tended to agree with medical marijuana use than those in the control condition significantly (covariate = legalization, *mean difference* = .68, *SE* = .24, $p < .05$; covariate = law enforcement, *mean difference* = .68, *SE* = .24, $p < .05$; covariate = economy, *mean difference* = .67, *SE* = .24, $p < .05$; covariate = medical effect, *mean difference* = .68, *SE* = .24, $p < .05$).

Next, Tukey's HSD tests revealed that respondents who read a news article including attributes to support marijuana legalization tended to significantly agree with marijuana legalization than those who read a news article including attributes to oppose marijuana legalization (covariate = legalization, *mean difference* = .98, *SE* = .27, $p < .01$; covariate = law enforcement, *mean difference* = .98, *SE* = .27, $p < .01$; covariate = economy, *mean difference* = .99, *SE* = .27, $p < .01$; covariate = medical effect, *mean difference* = .99, *SE* = .27, $p < .01$), supporting H5b. However, post hoc comparisons showed insignificant differences between the support condition and the control condition.

4.2.4 Findings from the analysis of competitive framing effects

The current study explores competitive framing effects in the context of marijuana legalization. H6a and H6b posed that participants who read a news article including attributes to both support and oppose marijuana legalization would show a similar agreement with medical marijuana and marijuana legalization of the control groups' position. Statistical equivalence analysis was conducted using TOST procedures (Lakens, 2017) to examine whether or not attitudes toward medical and recreational marijuana are considered equally between two-sided frame groups and the control

groups. This method is contingent on the statistical significance of two tests: the upper and lower TOST equivalence bounds, where is specified based on the smallest effect size of interest (see Lakens, 2017, for a detailed explanation). According to Lakens (2017), a minimum of 61 participants would be needed in each of the two conditions to test equivalence with upper and lower equivalence bounds set at values enabling the rejection of effects that are too small to be practically meaningful (Δ_L = -0.6 and Δ_U = 0.6 with 90% power and alpha = .05). Because the sample numbers of respondents in two conditions are 83 and 79, respectively, upper and lower equivalence bounds were used as -.6 and .6 (Cohen's *d* = .600). Respondents in the two-sided frame condition and the control condition reported statistically equal mean scores of attitudes toward medical marijuana, Welch's *t* = .127, *p* = .899, Cohen's *d* = .6, supporting H6a. Also, this analysis found equivalence between attitudes toward recreational marijuana of the two-sided frame condition and the control condition, Welch's *t* = -.764, *p* = .446, Cohen's *d* = .6, supporting H6b. Table 4.11 shows the results of H6a and H6b.

4.2.5 Findings from the analysis of marijuana use

The current study investigates how individual marijuana experience can moderate framing effects on attitudes toward medical marijuana and recreational marijuana. As mentioned above, this analysis included exposure to the first set of stimuli (*legalization, law enforcement, economy*, and *medical effect*) as covariates. Exposure to support frame is an independent variable and attitudes toward medical/recreational marijuana are dependent variables. Marijuana experience (or marijuana use) was used as a moderator. Table 4.12 shows each coefficient score and standard error of support frame, marijuana

use, and its interaction (support frame × marijuana use) when each covariate was entered. These coefficient scores were produced from *z*-transformed variables.

Findings revealed that an exposure to support frame significantly increased both attitudes toward medical marijuana (coefficient = .79, *SE* = .15, $p < .001$) and recreational marijuana (coefficient = .45, *SE* = .14, $p < .01$). Also, individual marijuana experience significantly increased both attitudes toward medical marijuana (coefficient = .35, *SE* = .11, $p < .01$) and recreational marijuana (coefficient = .45, *SE* = .10, $p < .001$).[3] However, this analysis revealed no interaction effects of support frame and marijuana use on attitudes toward medical marijuana (coefficient = -.08, *SE* = .15, *p* = n.s.) and recreational marijuana (coefficient = .06, *SE* = .15, *p* = n.s.). It means that those who were more likely to use marijuana supported for medical marijuana and recreational marijuana regardless of expose to either support or opposition frame. Thus, the findings of this study indicated that individual marijuana experience did not moderate framing effects but strongly influenced attitudes toward medical marijuana and recreational marijuana.

4.3 Mediation Model

4.3.1 Findings from the mediation model regarding behavioral intention

Figure 4.5 and Figure 4.6 display the path coefficients and standard errors when exposure to *legalization* was entered as a covariate. First, the path analysis confirmed that an exposure to support frame significantly increased both attitudes toward medical marijuana (coefficient = .41, $p < .001$) and recreational marijuana (coefficient = .25, $p < .01$). Second, the causal paths from both attitudes toward medical and recreational marijuana (M1) to risk perception (M2) were significant ($p < .001$). Third, risk perception

[3] The coefficients and standard errors are reported exposure to *legalization* was entered as a covariate.

(M2) significantly led to both less behavioral intention to use medical and recreational marijuana ($p < .001$). The exposure to support frame did not directly affect both behavioral intention to use medical and recreational marijuana (p = n.s.). The results were consistent when exposure to other frames (*law enforcement, economy*, and *medical effect*) was entered into the analysis. The findings also indicated that the coefficients of exposure to the first set of stimuli (*legalization, law enforcement, economy*, and *medical effect*) as a covariate were all insignificant. That is, the effects of the first set of stimuli were controlled.

The bootstrapping method was used to estimate the indirect effects of the exposure to support frame on both behavioral intention to use medical and recreational marijuana through attitude toward medical and recreational marijuana and risk perception about marijuana use. The bootstrapping approach randomly selected cases from the sampled data and yielded 10,000 datasets. Each dataset presented an estimate of the indirect influence of the two potential mediators. These indirect effects are regarded significant if the bias-corrected (bootstrapped) confidence intervals (95%) do not contain zero. Results indicated that the indirect effects via two mediating paths were significant when exposure to *legalization* was entered as a covariate (behavioral intention to use medical marijuana, coefficient = .16, *SE* = .05, 95% CI [.08, .26]; behavioral intention to use recreational marijuana, coefficient = .14, *SE* = .05, 95% CI [.04, .24]). Specifically, the exposure to support frame had significant indirect effects on behavioral intention to use medical marijuana through attitude toward medical marijuana (coefficient = .12, *SE* = .04, 95% CI [.05, .21]) and through attitude toward medical marijuana and risk perception (coefficient = .05, *SE* = .02, 95% CI [.02, .10]). Also, the exposure to support frame had

significant indirect effects on behavioral intention to use recreational marijuana through attitude toward recreational marijuana (coefficient = .09, *SE* = .04, 95% CI [.03, .17]) and through attitude toward recreational marijuana and risk perception (coefficient = .04, *SE* = .02, 95% CI [.02, 09]). In particular, both attitudes toward medical and recreational marijuana (M1) played a key role in mediating the effects of the exposure to support frame on both behavioral intentions to use medical and recreational marijuana. However, although some of indirect effects were significant, there was little total effect of the independent variable on two dependent variables.

4.3.2 Findings from the mediation model regarding policy attitude

Figure 4.7 and Figure 4.8 show the path coefficients and standard errors when exposure to *legalization* was entered as a covariate. This analysis indicated similar patterns with the above models. First, the path analysis confirmed that an exposure to support frame significantly increased both attitudes toward medical marijuana (coefficient = .42, $p < .001$) and recreational marijuana (coefficient = .27, $p < .01$). Second, the causal paths from both attitudes toward medical and recreational marijuana (M1) to risk perception (M2) were significant ($p < .001$). Third, risk perception (M2) significantly led to both less policy attitudes about medial marijuana and marijuana legalization ($p < .001$). The exposure to support frame did not directly affect support for medical marijuana policy (p = n.s.). However, the exposure to support frame directly affected support for marijuana legalization policy ($p < .001$). The findings also indicated that the coefficients of exposure to the first set of stimuli (*legalization, law enforcement, economy*, and *medical effect*) as a covariate were all insignificant.

Findings showed that the indirect effects via two mediating paths were significant when exposure to *legalization* was entered as a covariate (support for medical marijuana policy, coefficient = .26, *SE* = .06, 95% CI [.15, .39]; support for recreational marijuana policy, coefficient = .21, *SE* = .07, 95% CI [.08, .34]). Specifically, the exposure to support frame had significant indirect effects on support for medical marijuana policy through attitude toward medical marijuana (coefficient = .23, *SE* = .05, 95% CI [.14, .35]) and through attitude toward medical marijuana and risk perception (coefficient = .05, *SE* = .02, 95% CI [.02, .09]). Also, the exposure to support frame had significant indirect effects on support for recreational marijuana policy through attitude toward recreational marijuana (coefficient = .17, *SE* = .05, 95% CI [.07, .28]) and through attitude toward recreational marijuana and risk perception (coefficient = .03, *SE* = .01, 95% CI [.01, 07]). Alike the above model, both attitudes toward medical and recreational marijuana (M1) played a significant role in mediating the effects of the exposure to support frame on support for medical marijuana policy and marijuana legalization policy. In particular, the results found the total effects of the exposure to support frame on support for medical marijuana policy (coefficient = .24, $p < .01$). In contrast, there was little overall effect of the independent variable on support for recreational marijuana policy (p = n.s.).

Table 4.1 Organizing themes in marijuana legalization articles

Theme		NYT	WSJ	WP	DP	ST	SFC	DMN	TT	CD	TW	Total
Legislation	*N*	19	19	28	19	22	9	16	39	16	13	200
	%	26.0	27.5	37.8	23.8	32.8	12.5	24.2	60.0	45.7	33.3	31.3
Law	*N*	26	25	20	32	25	33	22	17	2	12	214
enforcement	%	35.6	36.2	27.0	40.0	37.3	45.8	33.3	26.2	5.7	30.8	33.4
Trial	*N*	12	5	9	11	7	21	1	3	3	4	76
	%	16.4	7.2	12.2	13.8	10.4	29.2	1.5	4.6	8.6	10.3	11.9
Youth drug	*N*	5	8	6	3	6	0	11	4	6	3	52
use	%	6.8	11.6	8.1	3.8	9.0	.0	16.7	6.2	17.1	7.7	8.1
Economy	*N*	10	14	8	14	8	2	2	3	2	2	65
	%	13.7	20.3	10.8	17.5	11.9	2.8	3.0	4.6	5.7	5.1	10.2
Patients	*N*	5	0	2	3	1	2	3	3	3	1	23
	%	6.8	.0	2.3	3.8	4.5	2.8	4.5	4.6	8.6	2.6	3.6
Medical	*N*	9	7	8	2	10	4	9	6	5	3	63
effect	%	12.3	10.1	10.8	2.5	14.9	5.6	13.6	9.2	14.3	7.7	9.8
Others	*N*	2	3	4	3	1	2	1	1	0	0	17
	%	2.7	4.3	5.4	3.8	1.5	2.8	1.5	1.5	.0	.0	2.7
Number		73	69	74	80	67	72	66	65	35	39	640

Note: NYT, the *New York Times*, WSJ, the *Wall Street Journal,* WP, the *Washington Post,* DP, the *Denver Post,* ST, the *Seattle Times,* SFC, the *San Francisco Chronicle,* DMN, the *Dallas Morning News,* TT, the *Tampa Tribune,* CD, the *Columbus Dispatch,* TW, the *Tulsa World*.

Table 4.2 Issue attributes: reasons to support or oppose marijuana legalization

Attribute		NYT	WSJ	WP	DP	ST	SFC	DMN	TT	CD	TW	Total
Reasons to support marijuana legalization												
Medical	*N*	28	14	20	17	22	27	23	33	13	10	207
benefit	%	38.4	20.3	27.0	21.3	32.8	37.5	34.8	50.8	37.1	25.6	32.3
Reducing	*N*	2	2	2	0	1	1	1	1	1	3	14
crime	%	2.7	2.9	2.7	.0	1.5	1.4	1.5	1.5	2.9	7.7	2.2
Reducing	*N*	10	4	7	0	4	2	5	3	3	3	41
social cost	%	13.7	5.8	9.5	.0	6.0	2.8	7.6	4.6	8.6	7.7	6.4
Economic	*N*	13	8	5	3	5	6	5	3	4	3	55
benefit	%	17.8	11.6	6.8	3.8	7.5	8.3	7.6	4.6	11.4	7.7	8.6
Relieving	*N*	5	1	8	3	2	5	4	7	7	1	43
pain	%	6.8	1.4	10.8	3.8	3.0	6.9	6.1	10.8	20.0	2.6	6.7
Others	*N*	5	1	7	1	5	3	1	1	1	1	26
	%	6.8	1.4	9.5	1.3	7.5	4.2	1.5	1.5	2.9	2.6	4.1
Reasons to oppose marijuana legalization												
Medical	*N*	11	16	18	10	14	11	16	12	6	9	123
risk	%	15.1	23.2	24.3	12.5	20.9	15.3	24.2	18.5	17.1	23.1	19.2
Increasing	*N*	6	5	2	3	2	4	4	4	1	4	35
crime	%	8.2	7.2	2.7	3.8	3.0	5.6	6.1	6.2	2.9	10.3	5.5
Gateway	*N*	7	9	6	6	6	1	12	15	1	2	65
effect	%	9.6	13.0	8.1	7.5	9.0	1.4	18.2	23.1	2.9	5.1	10.2
Social ill	*N*	8	15	8	12	4	4	14	15	3	4	87
	%	11.0	21.7	10.8	15.0	6.0	5.6	21.2	23.1	8.6	10.3	13.6
Others	*N*	1	0	2	2	1	0	2	2	0	0	10
	%	1.4	.0	2.7	2.5	1.5	.0	3.0	3.1	.0	.0	1.6
Number		73	69	74	80	67	72	66	65	35	39	640

Note: NYT, the *New York Times*, WSJ, the *Wall Street Journal,* WP, the *Washington Post,* DP, the *Denver Post,* ST, the *Seattle Times,* SFC, the *San Francisco Chronicle,* DMN, the *Dallas Morning News,* TT, the *Tampa Tribune,* CD, the *Columbus Dispatch,* TW, the *Tulsa World*.

Table 4.3 Issue attributes between conservative and liberal newspapers

Attribute	Conservative newspapers ($N = 274$)	Liberal newspapers ($N = 366$)
Reasons to support marijuana legalization		
Medical benefit	93 (33.9%)	114 (31.1%)
Reducing crime	8 (2.9%)	6 (1.6%)
Reducing social cost	18 (6.6%)	23 (6.3%)
Economic benefit	23 (8.4%)	32 (8.7%)
Relieving pain	20 (7.3%)	23 (6.3%)
Others*	5 (1.8%)	21 (5.7%)
Combined	128 (46.7%)	169 (46.2%)
Reasons to oppose marijuana legalization		
Medical risk	59 (21.5%)	64 (17.5%)
Increasing crime	18 (6.6%)	17 (4.6%)
Gateway effect**	39 (14.2%)	26 (7.1%)
Social ill**	51 (18.6%)	36 (9.8%)
Others	4 (1.5%)	6 (1.6%)
Combined***	121 (44.2%)	109 (29.8%)

Note: Conservative newspapers include the *Wall Street Journal,* the *Dallas Morning News,* the *Tampa Tribune,* the *Columbus Dispatch,* and the *Tulsa World.* Liberal newspapers include the *New York Times*, the *Washington Post,* the *Denver Post,* the *Seattle Times,* and the *San Francisco Chronicle.*
*$p < .05$; **$p < .01$; ***$p < .001$

Table 4.4 Issue attributes between one-sided and two-sided frames

		NYT	WSJ	WP	DP	ST	SFC	DMN	TT	CD	TW	Total
One-sided	*N*	30	29	24	27	30	21	29	42	18	15	265
	%	41.1	42.0	32.4	33.8	44.8	29.2	43.9	64.6	51.4	38.5	41.4
Two-sided	*N*	21	14	18	8	10	16	18	13	5	8	131
	%	28.8	20.3	24.3	10.0	14.9	22.2	27.3	20.0	14.3	6.1	20.5
Number		73	69	74	80	67	72	66	65	35	39	640

Note: NYT, the *New York Times*, WSJ, the *Wall Street Journal,* WP, the *Washington Post,* DP, the *Denver Post,* ST, the *Seattle Times,* SFC, the *San Francisco Chronicle,* DMN, the *Dallas Morning News,* TT, the *Tampa Tribune,* CD, the *Columbus Dispatch,* TW, the *Tulsa World*.
$\chi^2 = 46.737$, $p < .001$

Table 4.5 Story tone in marijuana legalization articles

Tone		NYT	WSJ	WP	DP	ST	SFC	DMN	TT	CD	TW	Total
Negative	*N*	4	20	9	11	7	1	25	19	8	9	113
	%	5.5	29.0	12.2	13.8	10.4	1.4	37.9	29.2	29.2	23.1	17.7
Neutral	*N*	42	37	41	58	36	48	27	32	14	19	354
	%	57.5	53.6	55.4	72.5	53.7	66.7	40.9	49.2	40.0	48.7	55.3
Positive	*N*	27	12	24	11	24	23	14	14	13	11	173
	%	37.0	17.4	32.4	13.8	35.8	31.9	21.2	21.5	37.1	28.2	27.0
Number		73	69	74	80	67	72	66	65	35	39	640

Note: NYT, the *New York Times*, WSJ, the *Wall Street Journal,* WP, the *Washington Post,* DP, the *Denver Post,* ST, the *Seattle Times,* SFC, the *San Francisco Chronicle,* DMN, the *Dallas Morning News,* TT, the *Tampa Tribune,* CD, the *Columbus Dispatch,* TW, the *Tulsa World*.

Table 4.6 Story tone between opinion and non-opinion articles

Tone	Non-opinion articles ($N = 451$)	Opinion articles ($N = 189$)
Negative	58 (12.9%)	55 (29.1%)
Neutral	302 (67.0%)	52 (27.5%)
Positive	91 (20.2%)	82 (43.4%)

$\chi^2 = 83.907$, $df = 2$, $p < .001$

Table 4.7 The way that the article's theme is recognized as across experimental conditions ($N = 410$)

Experimental condition	Respondents recognize the article's theme as				F-test (Partial η^2)
	Legislation Issue	Law Enforce-ment Issue	Economy Issue	Medical Effect Issue	
Legislation ($n = 105$)	5.18 (1.40)	4.56 (1.70)	3.30 (1.80)	3.11 (1.62)	38.30^{***} (.22)
Law Enforcement ($n = 106$)	4.15 (1.68)	5.21 (1.43)	3.03 (1.75)	2.92 (1.68)	44.64^{***} (.25)
Economy ($n = 97$)	4.05 (1.81)	2.67 (1.54)	5.79 (1.43)	2.65 (1.63)	85.14^{***} (.39)
Medical Effect ($n = 102$)	2.66 (1.56)	3.27 (1.74)	2.85 (1.73)	5.90 (1.37)	90.33^{***} (.40)

Note: Entries are mean scores along with corresponding standard deviations in parentheses.
All variables range from 1 to 7.
*** $p < .001$.

Table 4.8 The way of thoughts about marijuana legalization across experimental conditions ($N = 410$)

Experimental condition	Respondents think about marijuana legalization as				F-test (Partial η^2)
	Legislation Issue	Law Enforce-ment Issue	Economy Issue	Medical Effect Issue	
Legislation ($n = 105$)	5.49 (1.18)	5.03 (1.33)	4.68 (1.50)	4.81 (1.45)	6.82^{***} (.05)
Law Enforcement ($n = 106$)	4.94 (1.42)	4.88 (1.56)	4.38 (1.70)	4.26 (1.69)	4.76^{**} (.03)
Economy ($n = 97$)	4.34 (1.55)	4.28 (1.86)	5.24 (1.51)	4.06 (1.73)	9.53^{***} (.04)
Medical Effect ($n = 102$)	4.26 (1.82)	5.01 (1.73)	4.14 (1.787	5.63 (1.30)	16.98^{***} (.11)

Note: Entries are mean scores along with corresponding standard deviations in parentheses.
All variables range from 1 to 7.
** $p < .01$; *** $p < .001$.

Table 4.9 Levels of support for medical marijuana across conditions

Condition	N	M (SD)	Covariate	*F*	*p*	Partial η^2
Support	84	5.91 (1.10)	Legalization	10.41	.000	.09
Opposition	82	4.59 (1.85)	Law enforcement	10.21	.000	.09
Two-sided	83	5.26 (1.36)	Economy	10.51	.000	.09
Control	79	5.23 (1.73)	Medical effect	10.23	.000	.09
Total	328	5.25 (1.60)				

Note: *F*-value and Partial η^2 are presented when each covariate (legalization, law enforcement, economy, and medical effect) is entered in the analysis.

Table 4.10 Levels of support for recreational marijuana across conditions

Condition	N	M (SD)	Covariate	*F*	*p*	Partial η^2
Support	84	4.93 (1.63)	Legalization	4.88	.002	.04
Opposition	82	3.95 (1.79)	Law enforcement	4.78	.003	.04
Two-sided	83	4.48 (1.71)	Economy	4.97	.002	.04
Control	79	4.68 (1.74)	Medical effect	4.94	.002	.04
Total	328	5.25 (1.60)				

Note: *F*-value and Partial η^2 are presented when each covariate (*legalization, law enforcement, economy,* and *medical effect*) is entered in the analysis.

Table 4.11 Two one-sided tests (TOST) Results

	N	Mean (SD)	Welch's *t*-test	*df*	*p*-value	Cohen's *d*
Attitude toward medical marijuana						
Two-sided	83	5.26 (1.36)	.127	148	.899	.600
Control	79	5.23 (1.73)				
Attitude toward marijuana legalization						
Two-sided	83	4.48 (1.71)	-.764	159	.446	.600
Control	79	4.68 (1.75)				

Table 4.12 Moderation model with path coefficients of attitudes toward medical marijuana and marijuana legalization

Covariate	Variable	Attitude toward medical marijuana		Attitude toward marijuana legalization	
		Coefficient (SE)	F (R^2)	Coefficient (SE)	F (R^2)
Legalization	Support frame	.79 (.15)***	9.77 (.30)***	.45 (.14)**	11.46 (.34)***
	Marijuana use	.35 (.11)**		.45 (.10)***	
	Interaction	-.08 (.15)		.06 (.15)	
Law enforcement	Support frame	.79 (.15)***	9.05 (.29)***	.45 (.14)**	11.40 (.34)***
	Marijuana use	.37 (.11)**		.46 (.10)***	
	Interaction	-.13 (.16)		.05 (.14)	
Economy	Support frame	.78 (.15)***	8.65 (.28)***	.44 (.14)**	11.77 (.34)***
	Marijuana use	.37 (.11)***		.46 (.10)***	
	Interaction	-.13 (.15)		.06 (.14)	
Medical effect	Support frame	.77 (.15)***	9.95 (.31)***	.43 (.14)**	11.86 (.35)***
	Marijuana use	.35 (.11)**		.45 (.10)***	
	Interaction	-.10 (.15)		.06 (.14)	

Note: Marijuana use is a moderator. Interaction indicates the interaction between support frame and marijuana use.
** $p < .01$, *** $p < .001$

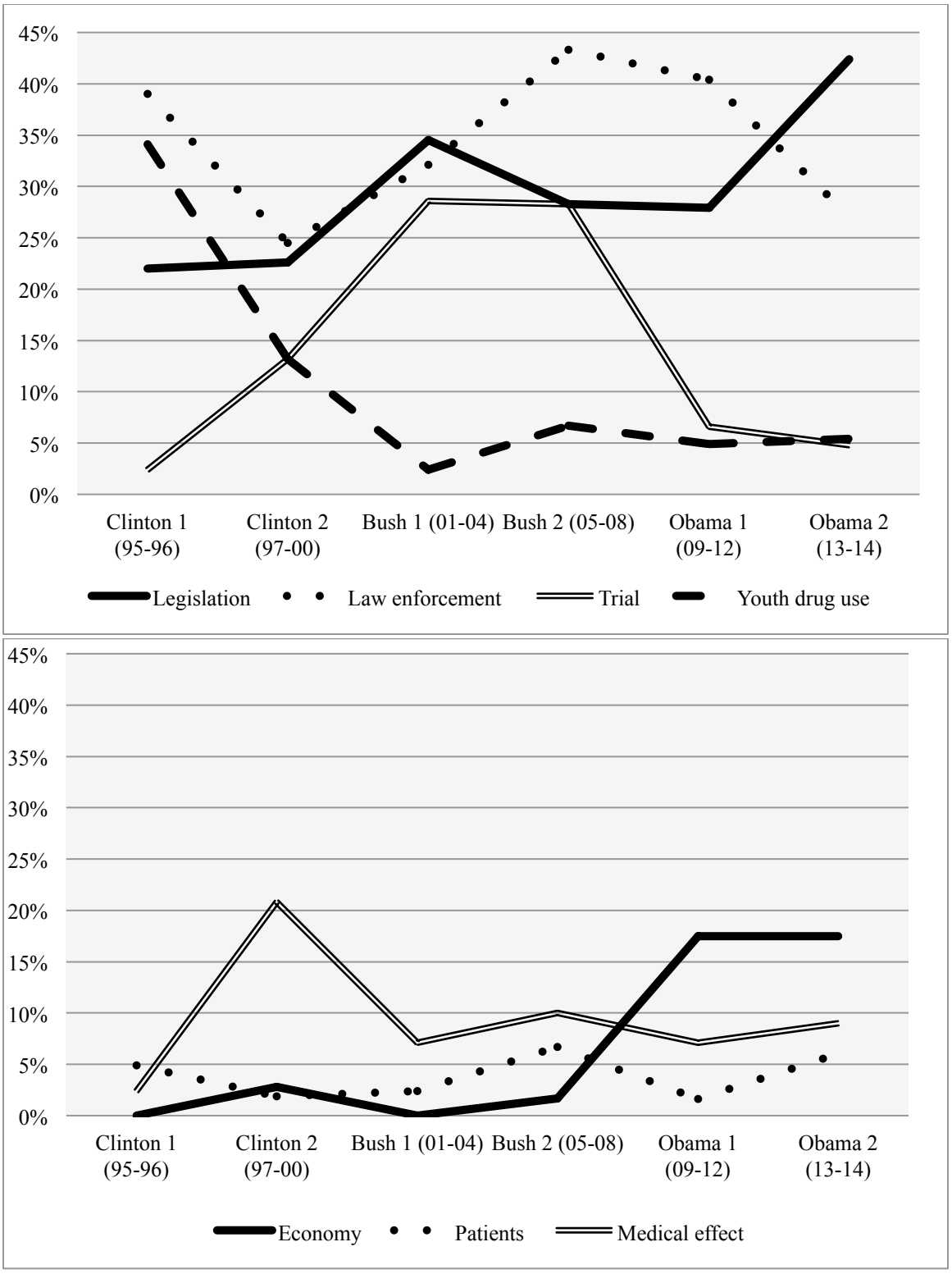

Figure 4.1 Percentage of articles reporting specific organizing themes over presidential periods (1995 ~ 2014)

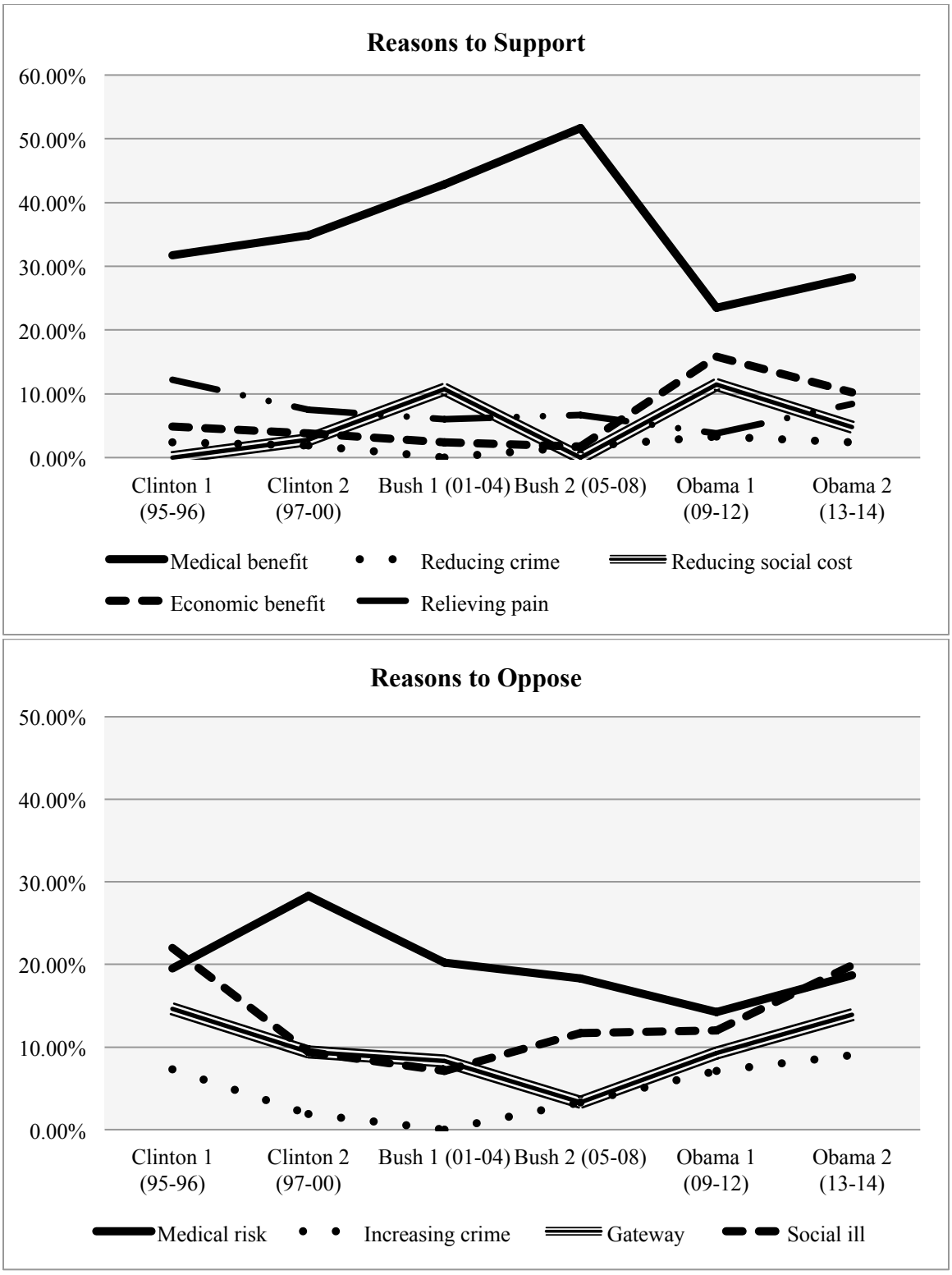

Figure 4.2 Percentage of articles presenting specific issue attributes over presidential periods (1995 ~ 2014)

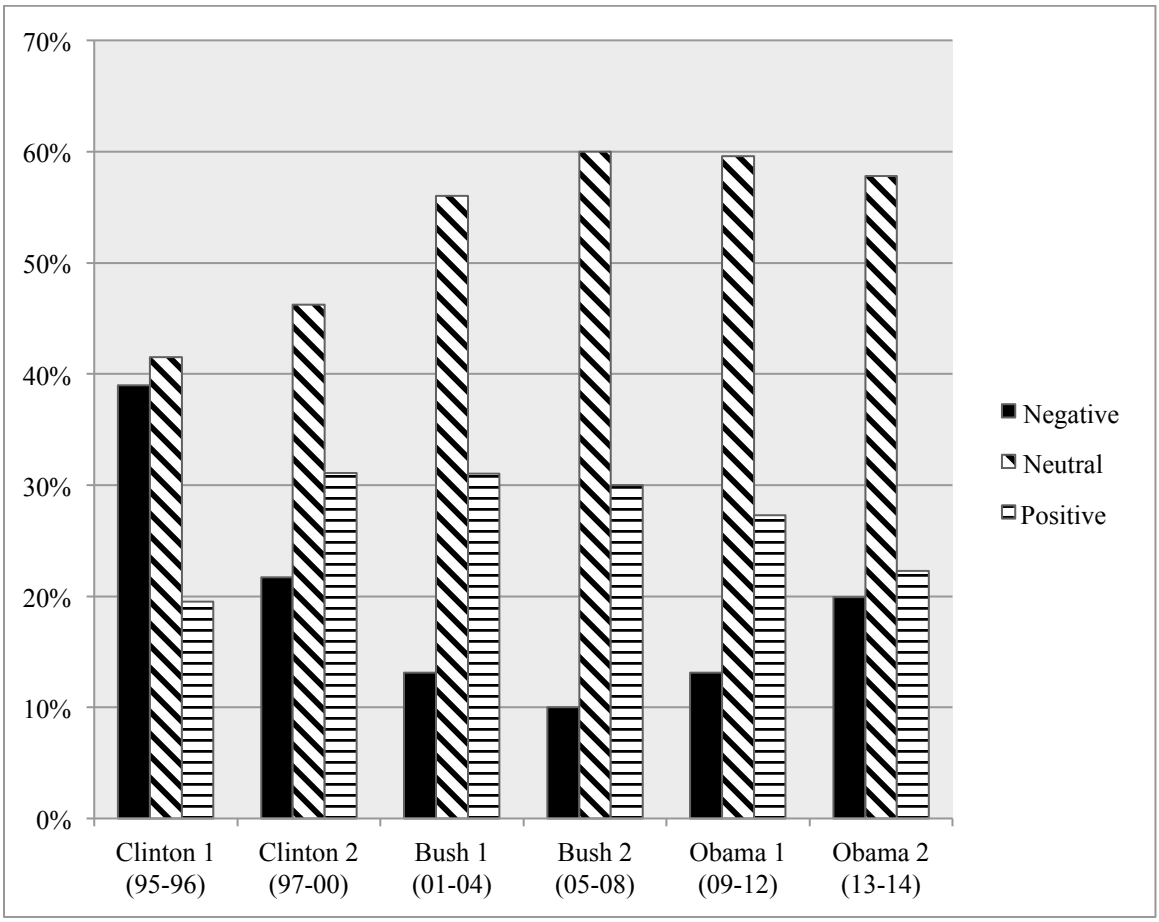

Figure 4.3 Percentage of story tone over presidential periods (1995 ~ 2014)

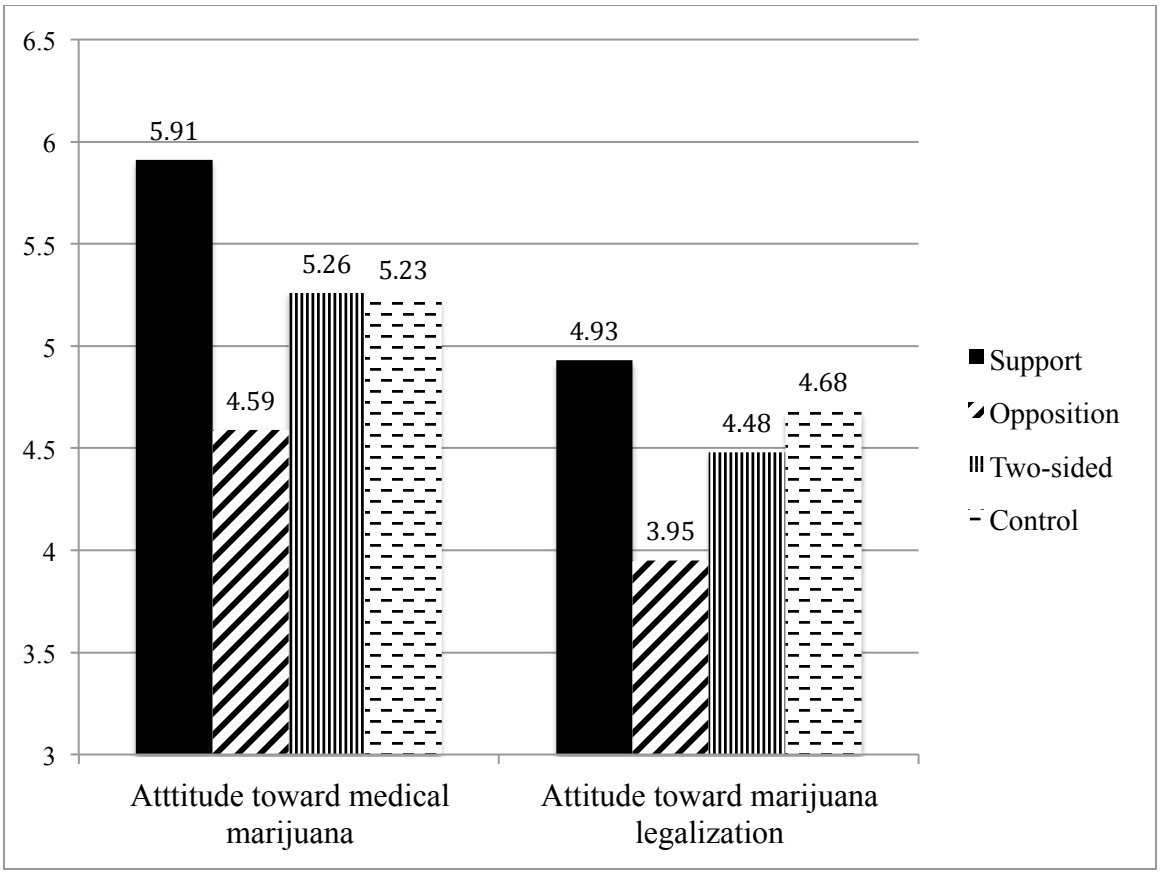

Figure 4.4 Effects of news frames in competitive framing environments

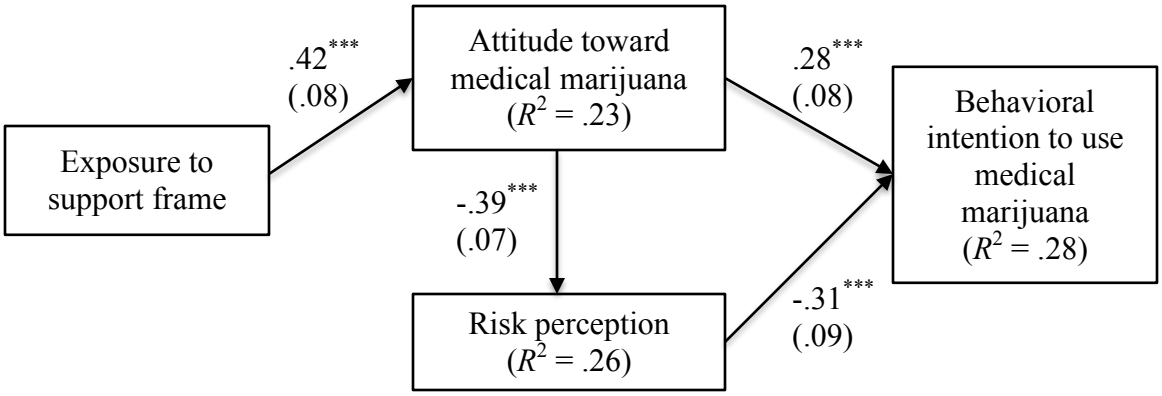

Figure 4.5 Mediation model with path coefficients of behavioral intention to use medical marijuana.

Note: Unstandardized regression coefficients and corresponding standard errors are reported when exposure to *legalization* is entered as a covariate. Insignificant paths are omitted in this figure. *** $p < .001$.

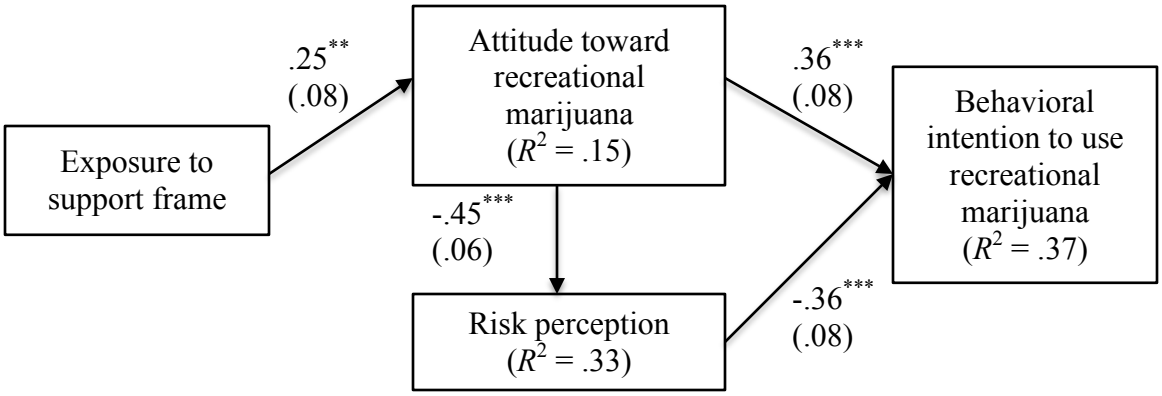

Figure 4.6 Mediation model with path coefficients of behavioral intention to use recreational marijuana.

Note: Unstandardized regression coefficients and corresponding standard errors are reported when exposure to *legalization* is entered as a covariate. Insignificant paths are omitted in this figure. ** $p < .01$; *** $p < .001$.

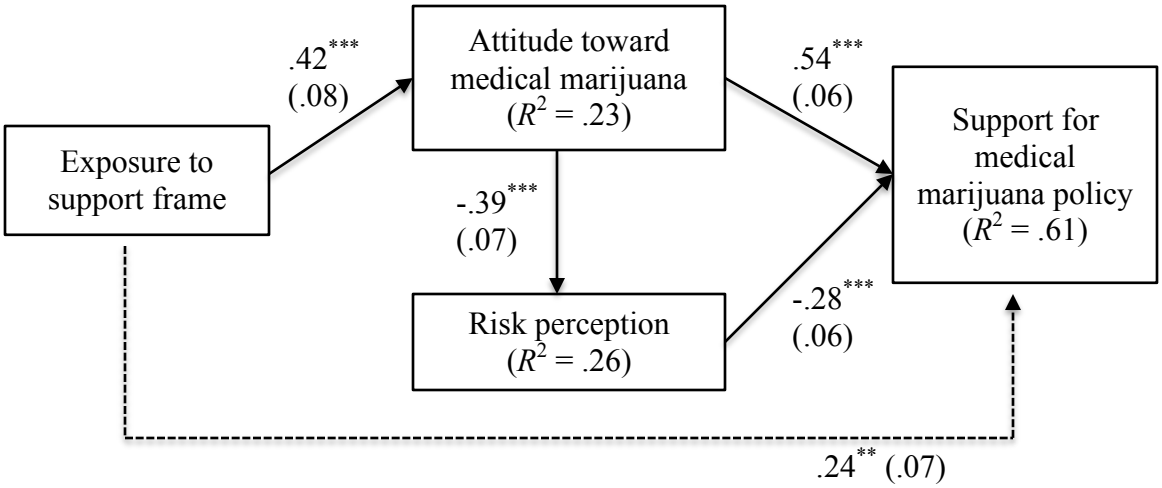

Figure 4.7 Mediation model with path coefficients of support for medical marijuana policy.

Note: Unstandardized regression coefficients and corresponding standard errors are reported when exposure to *legalization* is entered as a covariate. Dotted line denotes the total effect of exposure to support frame on support for medical marijuana policy. Insignificant paths are omitted in this figure. ** $p < .01$, *** $p < .001$.

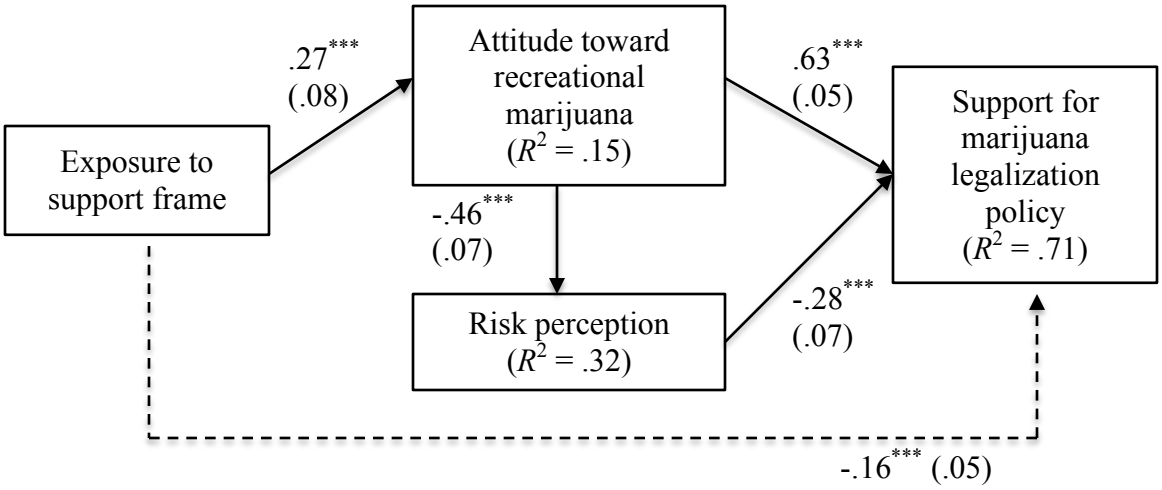

Figure 4.8 Mediation model with path coefficients of support for marijuana legalization policy.

Note: Unstandardized regression coefficients and corresponding standard errors are reported when exposure to *legalization* is entered as a covariate. Dashed line denotes the direct effect of exposure to support frame on support for recreational marijuana policy when mediators are not included. Insignificant paths are omitted in this figure. *** $p <$ .001.

CHAPTER 5

DISCUSSION

Chapter 5 Summary: The current study was initially designed to look at how the issue of marijuana legalization was presented in newspapers and how news frames could influence the audiences' attitudes or behavioral intentions. To investigate these questions, two different types of research methods were employed: content analysis and experiment. Then analyses of data collected from these methods indicated findings that deserve further conversation in terms of practical applications and theoretical implications. This chapter first discusses key findings of the current study and then reviews practical and theoretical implications. Lastly, this chapter provides a discourse of the limitations and directions for future studies.

5.1 Key Findings

Overall, the current study aims to answer the question of how U.S. newspapers have presented the issue of marijuana legalization between 1995 and 2014, and the question of how news frames can influence attitudes and behavioral intentions in competitive framing environments. The current study first analyzed newspaper content for three dimensions of framing, including organizing themes, issue attributes, and story tone. As a frame building factor, this study explored how political orientation of newspapers could influence the selection of certain frames. To comprehensively understand the framing effects documented in the content analysis portion of the study, a

series of experiments was conducted. This experimental portion of the current study tested classic framing effects and competitive framing effects. As a major predictor that can influence people's attitudes, prior marijuana experience was investigated. In addition, the mediation model was tested to look at framing effects on behavioral intentions as well as policy attitudes. With regard to the issue of marijuana legalization, in short, this study examined the presentation of communicators such as newspapers and people's responses toward the issue such as attitudes and behavioral intentions. In other words, this study made an attempt to integrate both a macro- and micro-level of framing approaches (Scheufele, 1999). The final purpose of this study was to better understand news frames and framing effects in the context of marijuana legalization as a key public health issue. Several important findings are suggested below.

First, the current study looked at the type of frame used for marijuana stories. Analyzing U.S. newspapers over the past 20 years, 1995 to 2014, this study found that marijuana legalization has been largely described as a *legislation* issue or a *law enforcement* issue rather than an *economy* issue or a *medical effect* issue (see Table 4.1). Taken together, findings are consistent with previous studies that have revealed that marijuana has been mainly discussed as a legal and policy issue (Golan, 2010; Lewis et al., 2015; McGinty et al., 2016). Findings showed that only 3.5% of news articles described this issue as a *patients* theme. Public frames such as a *law enforcement, legislation,* or *medical effect* theme were more dominant than private frames such as the *patients* theme.

There can be several explanations for these findings. First, marijuana legalization is essentially the theme about the legislative acts and the conflict between federal and

state government. That is, marijuana use is still illegal under the federal law. For example, a number of legislative measures that allow for recreational use of marijuana (e.g., Alaska Ballot Measure 2 of 2014; California Proposition 64 of 2016; Washington Initiative 502 of 2012) have been passed since 2012. In particular, during the second Obama administration period (specifically 2013 to 2014), newspapers reported a large number of legislative debates with a *legislation* theme. Second, marijuana stories often involved conflicts between federal and state governments, between enforcement agencies and citizens, and between governors and congresses. Since California allowed for medical marijuana in 1996, there have been numerous conflicts between federal law enforcement agencies and medical marijuana advocates. The conflict perspective is a popular frame because conflict is a recognized news value (Bennett, 2009). Thus, as a frame building factor, this conflict may influence journalists to report marijuana stories as a *law enforcement* theme (Kim et al., 2014). Third, a *medical effect* theme might appear less often because this study examined stories related to recreational use as well as medical use. Nonetheless, criticism of newspapers' tendency to define marijuana stories as *legislation* or *law enforcement* stories may be justified. Because these themes were clearly dominant, the issues surrounding medical marijuana were not commonly highlighted in the new. Although the issue of marijuana is important in terms of scientific or public health approach (Wilkinson et al., 2016), the findings of this study indicated that journalists paid little attention to the *medical effect* theme.

While medical marijuana was not a common theme, when it comes to issue attributes, *medical benefit* was the most frequently mentioned attribute to support marijuana legalization (See Table 4.2), suggesting that the medical effect has been the

most appealing merit. On the contrary, journalists most often presented *medical risk* as a reason to oppose marijuana legalization. Although more than 60% of articles presented marijuana legalization as a policy issue using a *legislation* theme or a *law enforcement* theme, newspapers highlighted the medical effect – benefit or risks – of marijuana. An important argument for marijuana control largely comes from evidence that using marijuana can cause medical risks (American Public Health Association, 2014; Wilkinson et al., 2016). If such evidence is not strong enough, or is mixed, the federal anti-marijuana policies could be reconsidered. Thus, advocates and opponents have frequently highlighted the medical benefits or risks of marijuana, and this study found that journalists also often described such issue attributes.

In particular, an *economic benefit* attribute increased in news coverage of marijuana issues during the Obama administration period (2009 to 2014). According to a recent study (McGinty et al., 2016), pro-legalization arguments such as increased tax revenue and business revenue were frequently presented in the media during those years, as well. Since 2009, 12 states and DC allowed for medical use of marijuana and eight states and DC legalized recreational use of marijuana. One of the selling points that advocates argued was an economic perspective, according to news reports. For example, from January to October in 2016, more than $1 billion worth of medical and recreational marijuana was sold in Colorado alone (Baca, 2016). The economic benefits involve direct spending, and exclude any other effects, including marijuana tourism, secondary markets, or employment opportunities (Hudak, 2016). Thus, this attribute will likely be increasingly used to support legalizing marijuana for proponents in other states.

This study also examined how political orientation of newspapers can influence the selective uses of certain frames by using the notion of frame building. Conservative newspapers were more likely to report reasons to oppose marijuana legalization than liberal newspapers. When presenting reasons to support it, however, there was no difference between conservative and liberal newspapers (See Table 4.3). McGinty et al. (2016) also found that the difference between Democrat-affiliated and Republican-affiliated newspapers reporting pro-legalizing arguments was not significant.

Why are there differences only in presenting reasons to oppose marijuana legalization? First, the differences can be explained by the shift in public opinion on the legalization of marijuana. As Figure 2.1 illustrates, public opinion on legalizing marijuana has been increasingly positive since the 1990s. Also, the medical effects of marijuana have been highly debated. Probably both conservative and liberal newspapers frequently reported the attributes to support marijuana legalization. Instead, it is possible that conservative newspapers more focused on reasons to oppose marijuana use. Thus, it is important to indicate that conservative newspapers highlighted issue attributes such as *gateway effect* and *social ill*. In 1999, the Institute of Medicine reported that scientific data showed the potential therapeutic value of medical marijuana including pain relief, control of nausea and vomiting, and appetite stimulation (Institute of Medicine, 1999). Many studies, however, revealed somewhat mixed results about the medical effect of marijuana (Caulkins et al., 2012). Over time, arguments for legalizing marijuana because of its medical benefits might prevail among the public and journalists. From the perspective of opponents, it can be a better strategy to focus on reasons to oppose marijuana legalization such as *gateway effect* and *social ill*. In particular, *Gateway effect*

was used to play the trump card in conservative newspapers. The second-most frequently mentioned, *social ill,* included a variety of examples such as drug abuse, adverse education and employment outcomes, and car crashes under the influence.

When it comes to marijuana legalization, this study initially explored how often newspapers used one-sided and two-sided frames. As Table 4.4 shows, findings revealed that about 41% of articles described marijuana legalization with a one-sided frame (either pro-legalizing or anti-legalizing) and about 20% of stories reported it with a two-sided frame (both pro- and anti-legalizing). The public may read two-sided framed articles. As researchers pointed out (McGinty et al., 2016; Niederdeppe et al, 2014), news media use of one-sided or two-sided frames about marijuana legalization can influence attitudes toward marijuana legalization or its policy. The current study also tested the effects of two-sided frames on attitudes toward medical marijuana and marijuana legalization.

As one of key dimensions of framing, the story tone of marijuana legalization articles was explored. Although more than half articles (55.3%) described the issue of marijuana with a neutral tone, positive stories (27%) were published more frequently than negative stories (17.7%, See Table 4.5). These findings can be explained by two-sided framed stories, which often result in a neutral tone. Only 41% of stories had one-sided frames, while others reported marijuana legalization with two-sided frames or without certain frames. These two-sided or non-framed articles likely present the issue with a neutral tone. Also, liberal newspapers more often offered positive stories (H2) and non-opinion articles used a neutral tone more than opinion stories did (H3), consistent with the previous study (Golan, 2010). Thus, findings supported the statement that opinion

articles clearly showed their specific perspectives toward marijuana legalization, while non-opinion articles tended to report this issue on neither side of an argument.

Another purpose of this study is to comprehensively examine how news frames can influence attitudes in competitive framing environments. To analyze framing effects, this study used a series of experimental designs. First, respondents who were exposed to each frame except for a *law enforcement* frame would recognize marijuana legalization as the perceptually congruent issue that each frame presented. However, those who read a law enforcement frame were more likely to consider marijuana legalization as either a *legalization* issue or a *law enforcement* issue (H4b was not supported). The other three themes succeeded in influencing the way respondents think about the issue of marijuana legalization. To find out any accurate reason why a law enforcement theme failed to influence respondents' opinion is beyond this study. Instead, the reason can be explained by the possibility that respondents could have had a prior preposition about this issue. Future studies should examine this point by using more sophisticated experimental designs.

Previous literature has shown that news frame can influence the public's attitudes toward an event or an issue (e.g., Borah, 2011a; Chong & Druckman, 2007a, 2007b; Price et al., 1997; Scheufele & Tewksbury, 2007). Given the findings that respondents exposed to articles with reasons to support marijuana legalization had more positive attitudes toward marijuana than those exposed to stories with reasons to oppose it (H5a & H5b), this study supported the classic framing effects. The findings of this study showed that the effects of news frames could be applied in the context of marijuana legalization that researchers have paid relatively little attention to.

More importantly, this study explored the effects of competitive frames. Corresponding with previous studies (Borah, 2011b; Cobb, 2005; Hansen, 2007; Sniderman & Theriault, 2004), the findings of this study also revealed that a two-sided frame indicated cancel-out effects, suggesting that respondents who read a mixed frame showed the middle ground between those who read a support frame and those who read an opposition frame (H6a & H6b). These findings can have important real-world implications in order to better understand framing effects (Borah, 2011b). As mentioned earlier, this study found that about 20% of articles used two-sided frames to present marijuana legalization. In other words, Americans may consume not a small number of multiple media frames in their everyday lives. As researchers pointed out (Borah, 2011b; Niederdeppe et al., 2014; Sniderman & Theriault, 2004), the public is frequently exposed to alternative or opposing arguments at the same time, and in these competitive framed environments, the public can be influenced or persuaded by "the clash of arguments" (Sniderman & Theriault, 2004, p. 146).

Although the findings of this study support that two-sided frames may produce cancel-out effects, we cannot say that the opposing sides (either marijuana supporters or opponents) will be equal competitors or that the public will receive equal exposure to alternative frames (Chong & Druckman, 2007). In a real world, the side that has greater resources and can change them into framing power may produce influential or appealing frames to the public (Chong & Druckman, 2007; Pan & Kosicki, 2001). In this study, the two-sided frame presented both reasons to support and oppose marijuana legalization in a similar degree of length and in the same number of reasons. That is, it was similarly operationalized in terms of arguments or resources. In many cases, however, actual news

stories may present issue attributes in a different degree of length or arguments. Thus, if the two-sided frame used in this study is operationalized in a different manner, the results will be also different. Under various competitive conditions – more close to real settings, the cancel-out effects may not be found.

Besides competitive framing effects, the current study investigated how personal marijuana experience could influence readers' attitudes. Findings indicated that marijuana experience failed to moderate framing effects on attitudes toward medical marijuana and marijuana legalization. However, respondents who were more likely to use marijuana would have positive attitudes toward marijuana, suggesting that marijuana use could play a key role in influencing attitudes across different framed conditions. These findings are consistent with previous studies (Alvaro et al., 2013; Cho & Boster, 2008) and a recent survey (Pew Research Center, 2015), which shows that only 34% of Americans who never used marijuana support legalization, while 65% who used marijuana support it. In particular, the coefficients of marijuana use in recreational marijuana were greater than those of marijuana use in medical marijuana. Thus, it can be inferred that individual marijuana experience was the more influential factor in the shift of attitudes than exposure to frames when it comes to recreational marijuana. Probably this is because opinions regarding medical marijuana were more favorable in the U.S. compared with opinions about recreational marijuana (Pew Research Center, 2014).

Lastly, the mediation model was tested to look at how attitudes and risk perceptions can mediate the effects of news frames on behavioral intentions and policy attitudes. Findings revealed significant indirect effects on behavioral intention to use medical and recreational marijuana and support for medical and recreational marijuana

through two each mediating path: via attitudes and via attitudes and risk perceptions (RQ6a to RQ7b). As many researchers indicate (Borah, 2007b; Jang, 2013), previous studies have tested the framing effects largely on attitudes or opinions, rather than behavioral intentions (e.g., Lecheler & de Vreese, 2012; Price et al., 1997; Sniderman & Theriault, 2004). However, this study can provide solid evidence of framing effects on behavioral intentions. Findings showed that exposure to certain frames can still influence individuals' behavioral intentions although these effects are indirect.

Another key finding is the mediating role of attitudes rather than risk perceptions. That is, attitudes toward marijuana can be a crucial factor that bridges the relationship between exposure to frames and behavioral intentions. According to the findings of this study, for example, antidrug messages can be designed to focus on the shift of attitudes toward certain drugs, including marijuana. Therefore, the implications of this study can be useful for public health communicators and policy makers.

5.2 Practical Implications

Combining theorizing and findings of past research into the context of marijuana legalization in the U.S., this study can provide useful information for practical implications for public health communication and political communication. First, research on the framing of marijuana legalization is important, as the way in which this issue is framed can change or shape public opinion (e.g., Price et al., 1997). In practice, attitudes about marijuana policies may influence medical marijuana policy or legalization policy. This study revealed which news frames appeared more often than others, and how such frames have changed over time, 1995 to 2014. Also, findings supported the strong evidence of framing effects on attitudes and behavioral intentions in the context of

marijuana legalization. Therefore, the findings of this study can be helpful for public health providers or policy makers to analyze the relationships between news stories and public opinion toward marijuana legalization.

According to the findings of the current study, only 9.8% of news stories have described marijuana legalization as a *medical effect* issue. Despite merging the *medical effect* theme category with the *patients* theme category, the proportion increased to merely 13.4%, indicating a very small number of stories described marijuana legalization as a *medical effect* issue, particularly compared to Israeli newspapers (Lewis et al., 2015).[4] In addition, a *medical effect* theme appeared less often in recent years (See Figure 4.1), suggesting that Americans are more likely to consider marijuana legalization as something other than a public health issue. Thus, these findings can suggest that there is an opportunity for public health communicators to increase health communication efforts.

Findings revealed that newspapers have presented several reasons to oppose marijuana legalization. Recently, *economic benefit* and *reducing social cost,* as well as *medical benefit,* were frequently mentioned as anti-legalizing attributes. In particular, several states where marijuana was legalized showed economic benefits through increasing tax revenues, sales growth, marijuana tourism, and revitalizing community (Baca, 2015; Hudak, 2016; Walker, 2014). Based on the findings of this study, it can be advocated that public health practitioners should develop countermeasures to prevent indiscreet marijuana use. For example, public health practitioners should examine more elaborate economic effects because such effects may be overestimated.

[4] Analyzing three national newspapers in Israel, Lewis, Broitman, and Sznitman (2015) found that 17.3% of articles presented a medical frame and 21.6% showed a patients' frame.

This study also examined the framing effect in competitive frame environments. As Menashe and Siegel (1998) indicate, the framing of a certain issue can shape the basis by which public health policy decisions are made. Individual behaviors as well as attitudes and opinions can be influenced by news frames (Borah, 2011b; Jang, 2013; Valentino et al., 2001). Findings revealed framing effects on attitudes and behavioral intentions. In addition, these effects were tested even in a more realistic setting using a two-sided frame. Thus, the findings of this study supported the idea that framing could play a key role in the processing of public health policy information involved in marijuana legalization. In a practical application, for example, health practitioners can use this information when they design messages for anti-drug campaigns.

As Stryker (2003) points out, the purpose of public health practitioners is to prevent abuse or inappropriate use of marijuana, especially among adolescents. The findings of this study can provide useful information to develop and apply antidrug campaigns or strategies. First, this study found that news frames were able to change attitudes toward marijuana. Then, personal marijuana experience played a key role in the framing effects. Thus, when health practitioners or policy makers construct any anti-marijuana strategies to change attitudes toward marijuana, they should develop two different approaches for those who never used marijuana and those who have used it. For example, although audiences are exposed to anti-marijuana messages, the framing effects will be limited among those who have used marijuana. As mentioned earlier, another important finding was the mediating role of attitude on behavioral intentions and policy attitudes. Although there were no direct associations between exposure to a pro-legalizing frame and behavioral intentions to use medical and recreational marijuana, news frames

could influence behavioral intentions through indirect paths of attitudes. Thus, health communicators or policy makers need to focus on the role of attitudes when they design messages for anti-marijuana campaigns or ads. For example, as Cho and Boster (2008) suggested, loss-frame ads can be more efficient to change attitudes among those who have used marijuana. Both loss- and gain-frame ads are persuasive for non-users. Thus, a loss-frame will be a better message design to prevent marijuana regardless of users or non-users.

5.3 Theoretical Implications

The current study makes contributions to the literature in the areas of framing and frame building. Although marijuana legalization has been one of the most important and timely issues in the U.S., framing scholars have paid little attention to systematically analyzing this issue. In addition, previous studies (e.g., Golan, 2010; McGinty et al., 2016) examined media framing of either medical marijuana or recreational marijuana, not both. Such analyses might focus on only one aspect of the broader public debate surrounding marijuana. However, this study analyzed framing of both medical and recreational use of marijuana to better examine the public's understanding of marijuana and media coverage of this issue. In other words, to fill the literature gap, this study provided an initial and comprehensive analysis of news framing of marijuana legalization, examining three key dimensions of framing: organizing theme, issue attributes, and story tone (Ghanem, 1997).

Researchers have explored the processes or factors that can influence the selective uses of certain frames using the notion of frame building (de Vreese, 2005; Scheufele, 1999, 2000). To test frame building, this study examined political orientation of

newspapers as a key frame-building factor. Findings showed that conservative newspapers tended to present more reasons to oppose marijuana legalization than liberal newspapers, while the opposite prediction was not supported, suggesting that political orientation of newspapers played a partial role in influencing the selective processes of frames. However, these findings can be explained in several ways. First, for the current study, political orientation of newspapers was decided by the following rule: the 2008 and 2012 presidential endorsements (Peters & Woolley, 2015). Republican-affiliated newspapers were considered as conservative newspapers, while Democrat-affiliated newspapers were regarded as liberal newspapers. However, these standards were not consistent in the context of marijuana legalization. As shown in Table 4.2, for example, the *Denver Post,* assigned as one of the liberal newspapers, was less likely to present reasons to support marijuana legalization such as *medical benefit* and *economic benefit*. On the contrary, the *Tampa Tribune,* allocated as one of conservative newspapers, tended to mention anti-marijuana reasons such as *medical benefit*. Second, other factors such as organizational pressures may better explain the frame building theory, rather than the political orientation. Previous studies revealed that regional newspapers tended to represent local interests, suggesting that organizational pressures can be a key frame-building factor in discussing the issue involved in state interests (e.g., Kim et al., 2014; Kim et al., 2011). In the beginning the current study attempted to examine both political orientations and organizational pressures as frame-building factors. Newspapers were selected equally from the states where marijuana is illegal and legal. However, because of the limitation of data accessibility, newspapers selected from the states where marijuana is illegal are all regarded as conservative newspapers, and vice versa. This study suggests

that future studies need to examine frame building (1) with more elaborate rules and (2) with more and diverse newspapers. Thus, theoretical implications about frame building will be developed through future research.

Above all, the current study can have a theoretical implication in that this study initially tested competitive framing effects in the context of marijuana legalization, which is one of the most controversial public health issues in recent years. As Nisbet et al., (2013, p. 778) point out, studies of framing effects on attitudes have been examined in two ways "(a) focusing on identifying individual differences that may moderate the effects of frame exposure and (b) examining framing effects within competitive and noncompetitive information environments." The current study investigated these two aspects by looking at individual marijuana experience as the micro level of analysis and then exploring the competitive framing conditions about marijuana legalization at the macro level of analysis. The findings of this study showed cancel-out effects on attitudes toward marijuana when respondents were exposed to a two-sided frame. Simultaneously, findings demonstrated that framing effects could be contingent on individual differences such as personal marijuana experience.

This study, in particular, revealed a theoretical mechanism through which mediators could explain the relationships between news frames and behavioral intentions. Despite no directly connected associations between news frames and behavioral intentions, attitudes as a key mediator could play a more significant role in behavioral intentions to use medical and recreational marijuana. In other words, this study tested key mediators that could establish an association with behavioral intention (Stryker, 2003).

Furthermore, because behavioral intentions are rarely tested on studies of framing effects (Borah, 2011b), the findings of this study could contribute to the framing literature.

5.4 Limitations and Future Research Directions

Before further discussing findings, it is necessary to indicate several limitations of this study. First, analyzing only newspapers, this study did not include other news sources such as television news and online news contents. Because the time frame of this study was 20 years, between 1995 and 2014, numerous stories from newspapers could be collected. In the current study, for example, a total of 4,186 stories were collected from the selected 10 newspapers during the 20 years. If marijuana stories were retrieved from other sources, it could be very hard to manage the sample of this study. Thus, one of the major reasons to analyze only newspapers was to obtain a manageable sample size. Also, newspapers still provide a useful channel to deliver information and report news, as they can play a key role in setting the agenda for other news media (Lewis et al., 2015; Wakefield, Flay, Nichter, & Giovino, 2003). In addition, many mainstream newspapers have provided their online versions through their own webpages and social media. Thus, news stories from these newspapers can be widely exposed to Americans. As such, newspapers (online or in print) can play a potentially crucial role in shaping the public opinion regarding marijuana legalization. However, future research should explore how various news formats including national television news outlets, local television news programs, news magazine, and Internet news sources present the issue of marijuana legalization.

Second, the selection of newspapers has limitations. This study selected 10 newspapers according to the predefined rules (See Chapter 3). Although this study has

intent to analyze the most representative newspapers from the states where marijuana is legal and illegal, some newspapers were not available through online search engines such as the *Lexis-Nexis,* the *Factiva*, and the *News Bank* (e.g., the *Los Angeles Times* and the *Chicago Tribune*). Thus, this study examined less representative newspapers (e.g., the *San Francisco Chronicle*, the *Tampa Tribune*, the *Tulsa World*), which can cause concerns regarding the generalizability of the findings. Thus, it is necessary for future research to include more representative newspapers as much as possible. Also, as mentioned above, future studies need to include both liberal and conservative newspapers equally from the states where marijuana is legal and illegal.

Third, another shortcoming is the way that mentions of each issue attribute were counted. Any mention of reasons – regardless of its length or depth – was calculated as one. Thus, the analysis of this study may be overestimated or underestimated. As Kim et al. (2014) pointed out, however, it is difficult to determine an objective way to quantify counts considering its length and depth. Rather, to avoid subjective judgment, this study used the way that the previous research used and established (e.g., Kim et al., 2014; Kim & Willis, 2007).

Fourth, it can be pointed out that the categories of themes and attributes analyzed in this study were inductively determined because there have been only a few previous studies on the topic of marijuana legalization. The coding categories used in this study may raise questions about the results in terms of validity and reliability. Thus, future studies should test the same categories that this study used and then develop more correct coding categories. After several examinations on the categories, this study will be able to offer useful coding categories for marijuana studies.

Fifth, the use of a student sample has limitations. Data for this study were collected from college students. Although a college student sample is not much different from a sample from other groups (Nelson, Clawson, & Oxley, 1997), examining the experimental design of this study with the general public sample can be more suitable for generalizability. Thus, replicating this study with an adult sample may offer additional information on the framing effects or the role of individual marijuana experience.

Sixth, one of the major limitations is that the first set of stimuli (*legalization, law enforcement, economy*, and *medical effect*) and the second set of stimuli (support, opposition, two-sided, and control) were consecutively presented to participants in this study. Exposure to the first set of stimuli can affect respondents' answers after they read the second set of stimuli. In order to control the effect, thus, this study included exposure to the first set of stimuli as a covariate variable when analyzing framing effects regarding the second set of stimuli. Nonetheless, future study must conduct two different experiment designs separately.

Lastly, this study tested the hypotheses by using the message design of strong versus strong frame. In a realistic setting, news coverage of marijuana legalization may have asymmetric mixed frames: strong versus weak frame (Chong & Druckman, 2010). In addition, marijuana legalization is a highly debated issue among marijuana users and non-users. Thus, future research can investigate how competitive framing interact with individual marijuana experience to influence attitudes or behavioral intentions on marijuana legalization when strong versus weak frames are presented in competitive framing environments.

5.5 Conclusion

Research on the framing of marijuana legalization is very important as the way in which marijuana stories are framed can shape public opinion about medical and recreational use of marijuana or marijuana policy (Price et al., 1997). This formed public opinion also can influence national or state policies about medical and recreational use of marijuana. The current study aimed to integrate a macro- and micro-level of framing approaches (Scheufele, 1999), by simultaneously exploring news frames of newspapers as well as individual responses toward news frames.

In summary, this study examined how U.S. newspapers have presented the issue of marijuana legalization for the past 20 years, 1995 to 2014, and tested how political orientation of newspapers played a key role in the selective uses of certain frames, by investigating the notion of frame building. Furthermore, a series of experiments were conducted to look at the effects of news frames in competitive framing environments and the role of individual marijuana experience. Lastly, the mediation model was examined to find out the key mediator of the association between news frames and behavioral intentions.

Framing can affect the way the readers evaluate a certain issue, influencing their judgment (Gamson & Modigliani, 1989). The findings of this study showed that marijuana legalization has been largely framed as a public policy issue such as *regulation* or *legislation*, rather than a health or science issue, and newspapers presented more frequently pro- and anti-legalizing reasons as medical benefits and risks of marijuana. As Kim et al. (2002) indicated, the way in which the public understands the issue can in turn influence their support for or opposition to marijuana policies including legislative acts

and enforcements about marijuana. Thus, it can be argued that Americans are more likely to evaluate marijuana legalization as a public policy issue, and their attitudes can be largely influenced by such reasons. In addition, the findings of this study supported the ideas that news frames can play an important role in shaping audiences' perception involved in marijuana legalization.

The findings of this study suggest that news coverage might change public opinion. The share of Americans who favor legalizing the use of marijuana has increased since the 1990s (See Figure 2.1). In particular, public support dramatically jumped between 2006 and 2013. As Figure 4.2 shows, medical benefit most frequently appeared during the Bush administration period (2001 to 2008), and economic benefit was most often reported during the Obama administration period (2009 to 2014). However, reasons to oppose marijuana legalization were less presented during the Bush administration period (2001 to 2008) and the first Obama administration period (2009 to 2012). In addition, as Figure 4.3 displays, newspapers were more likely to describe marijuana legalization stories with a positive tone rather than a negative tone between 2001 and 2012. Thus, these reports of American newspapers could influence Americans' attitudes toward marijuana legalization, and then might play a key role in changing public opinion between 2006 and 2013.

Since 2012, eight states and DC legalized the recreational use of marijuana and 12 states allowed for medical marijuana. Although newspapers were more likely to present reasons to oppose marijuana legalization after 2013, the increasing trend of public opinion was not changed. Probably, these recent trends that more and more states legalized medical or recreational use of marijuana also could affect public opinion toward

marijuana legalization. However, it is necessary to examine more sophisticatedly why patterns of news coverage did not correspond with the trend of public opinion about marijuana legalization after 2012.

The purpose of health communication is to provide useful information for the public and to prevent indiscriminate use of drugs, including marijuana. One of the major sources of information about the potential risks and benefits of medical and recreational marijuana is the news media, including newspapers, where the majority of Americans receive information about public health issues (Brodie, Hamel, Altman, Blendon, & Benson, 2003). Thus, the findings of this study can provide useful information for public health communicators and policy makers, as well as the public.

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APPENDIX A: CODING BOOK

This coding book serves as a procedure manual, with definitions and examples, to help coders through the coding process. It is important that coders keep to the definitions presented in this manual, so that the coding can be collected objectively. Please abstain from allowing personal viewpoints or feelings to affect how coders decide to code. If coders have any questions during the coding process, please feel free to ask the author (Hwalbin Kim).

1. ID Number

2. Coder

3. Data (YYYY-MM-DD)

4. Newspaper (NP)

Code 1 for the *New York Times*, code 2 the *Wall Street Journal*, code 3 for the *Washington Post*, code 4 for the *Denver Post*, code 5 for the *Seattle Times*, code 6 for the *San Francisco Chronicle*, code 7 for the *Dallas Morning News*, code 8 for the *Tampa Tribune,* code 9 for the *Columbus Dispatch*, and code 10 for the *Tulsa World*.

5. Title

Write the title with at least five first words.

6. Unrelated?

Code 0 for an unrelated story. Code 1 for a related story. An unrelated story means that the story simply mentions marijuana use and there is no context with marijuana legalization. For example, if the story reports cases or accidents related with marijuana use (i.e., arrests or scandals), the story is unrelated

7. Length of story

Enter the number of words in each story.

8. Organizing Theme (Framing, F)

Framing is defined as an important organizing theme or idea that provides meaning to the issue of marijuana legalization in a story. This organizing theme can package the issue in a specific way, telling what the issue is about. Coders first read the whole story carefully, and then decide the framing of each story. Framing is categorized into one of the eight organizing themes. Below coders will find a list with definitions and explanations for each theme. Stories that are not identified as one of eight themes are all coded as others. If a story presents more than one theme, coders can select as many as three most dominant themes.

F1) *Legislation*

This framing primarily emphasizes the legislative proceedings regarding marijuana legalization and marijuana use. This theme includes the passing of an ordinance and a revised ordinance. Also, this theme focuses on the conflicts between the governor and state legislature.

F2) *Law Enforcement*

This theme highlights regulations of marijuana use. Context is focused on governmental regulations. This frame includes operating procedures, regulations, controls, and activities associated with marijuana legalization and marijuana use.

F3) *Trial*

Context involves an official jurisdiction. This frame emphasizes debates in an official juridical trial. This theme focuses on trials related with marijuana legalization such as selling marijuana minors and postponement of trials.

F4) *Youth Drug Use*

This frame focuses on the marijuana use of teenagers or youths. This theme primarily highlights the problems and risks of young users. In addition, this frame points out a ‘gateway effect.’ A gateway effect means that marijuana use can lead to increase the likelihood of future hard drug use.

F5) *Economy*

This frame highlights an economic effect of marijuana legalization. This frame, for example, presents tax effects, new employments, and revitalizing regional economies. Context involves the impact of a community or an individual.

F6) *Patients*

This frame focuses on the personal history about patients' marijuana use. This theme includes compassion or plight of patients and their family. Also, this theme generates empathy in the reader. Context involves human face of a marijuana legalization issue. This frame mainly deals with marijuana legalization as a private issue.

F7) *Medical Effects*

This theme emphasizes the debates with regard to medical effects or benefits of marijuana use. This frame focuses on medical treatment for specific symptoms. Also, this frame highlights medical marijuana research.

F8) *Others*

Use this category if the story does not fit into these eight themes. Briefly specify what theme is presented in the story.

9. Issue Attribute

Issue attributes refer to certain characteristics or aspects of an issue that can be engaged to evaluate and think about the issue. As for marijuana legalization, there are two types of issue attributes: the attribute to support or oppose marijuana legalization. The attributes to support have five sub-categories and the attributes to oppose have six sub-categories. Each attribute should be coded as "present" or "not present." Any mention to an attribute is coded as only one count no matter how many mentions are made. If coders can identify any issue attribute that does not fit into eleven given sub-categories, code others.

1) Issue attributes to support marijuana legalization (Support, S)

(S1) *Medical benefit*

Medical benefit refers to the attribute that marijuana can have therapeutic value in treating symptoms such as appetite loss, nausea, chronic pain, anxiety, sleeping disorder, and intraocular pressure. This attribute emphasizes that marijuana should be legal for medical purposes and benefits. Context involves any evidence for medical benefits of marijuana in a story.

(S2) *Reducing crime*

Reducing crime refers to the attribute that marijuana legalization can lead to reducing crimes related with illicit drugs. This attribute focuses on the increase of safety in communities that medical marijuana is legal.

(S3) *Reducing social cost*

Reducing social cost refers to the attribute that marijuana legalization can lead to reducing social cost such as jail and law enforcement.

(S4) *Economic benefit*

Economic benefit refers to the attribute that marijuana legalization can lead to economic benefits in the state or communities. These benefits include tax revenues and economic effects such as new hires and revitalization of local communities. Also, this attribute points out lowering of marijuana price through the open market after marijuana is legal.

(S5) *Relieving pain*

Relieving pain refers to the attribute that marijuana should be legalized in order to relieve severe pains that patients or family suffer. Context involves the humane aspects of patients or family.

(S6) *Others*

Use this category if the story does not fit into these four issue attributes. Briefly specify what issue attribute to support is presented in the story.

2) Issue attributes to oppose marijuana legalization (Opposition, O)

(O1) *Medical risk*

Medical risk refers to the attribute that marijuana has no scientific evidence about medical marijuana benefits and it has no therapeutic value. This attribute focuses on the risks of marijuana use particularly to adolescents. These risks include emphysema, cancer, secondhand smoke, impaired mental health, and respiratory problems.

(O2) *Increasing crime*

Increasing crime refers to the attribute that marijuana legalization can lead to increases in illicit-drug related crimes and endanger our community and society. For example, legalization can cause an influx of weapons into a peaceful community and increase crime around dispensary locations.

(O3) *Gateway effect*

Gateway effect refers to the attribute that marijuana legalization can lead to increased likelihood of hard drug use in the future and make users, especially adolescents, available easily. This attribute emphasizes that medical legalization can cause full legalization including recreational use.

(O4) *Social ill*

Social ill refers to the attribute that marijuana legalization can lead to a variety of social ills. These social ills include abuse, overdose, automobile crashes, lower school performance, and tardiness in the workplace.

(O5) *Others*

Use this category if the story does not fit into these five issue attributes. Briefly specify what issue attribute to oppose is presented in the story.

10. Story Tone (T)

Story tone refers to answering the question of whether the story is overall in support of or in opposition to marijuana legalization or marijuana use. Story tone is identified as negative, balanced, or positive tone towards marijuana legalization or marijuana use. Coders first review a whole story mainly focused on headline and lead sentences. To be regarded as either positive or negative, at least two-thirds of each

paragraph should be in either direction. Code 1 if story tone is considered as negative, code 3 if story tone is regarded as positive, and code 2 if story tone cannot be considered as positive or negative.

APPENDIX B: EXPERIMENTAL QUESTIONNAIRE

Study 1: Stimuli

Q1. The news article you read highlights a certain aspect about the issue of marijuana legalization. Remind the news article you read and think about the main theme of the news article. Please rate your level agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

1.1 This article focuses on the legislative proceedings about marijuana legalization.
1.2 This article focuses on the regulations, law enforcement, and controls about marijuana legalization.
1.3 This article focuses on economic effects about marijuana legalization.
1.4 This article focuses on medical effects about marijuana (legalization).

Q2. This set of items asks you what kinds of an issue is marijuana legalization or marijuana use. Considering the news article you read, please rate your level agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

2.1 Marijuana legalization or marijuana use is a legislation issue.
2.2 Marijuana legalization or marijuana use is a law enforcement or regulation issue.
2.3 Marijuana legalization or marijuana use is an economy or industry issue.
2.4 Marijuana legalization or marijuana use is a medical effect or health science issue.

Study 2: Stimuli

Q3. (Attitude toward marijuana legalization) Now, bearing in mind the news article you just read, please rate your level agreement with the following statements. (For reference, in the state of South Carolina, the use of medicinal marijuana is illegal.)

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

3.1 Medical marijuana use should be legalized.
3.2 Medical marijuana should be prohibited.
3.3 Recreational marijuana use should be legalized.
3.4 Recreational marijuana use should be prohibited.

Q4. (Risk Perception) This set of items asks your perceived risks of marijuana use. Please rate your level agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

4.1 Marijuana may cause medical risks such as cancer, impaired mental health, and respiratory problems.
4.2 Marijuana use can lead to an increase in illicit-drug related crimes.
4.3 Marijuana use can lead to an increased likelihood of using other drugs in the future.
4.4 Marijuana can cause social ills including abuse automobile crashes, and tardiness in the workplace.
4.5 Marijuana may pose risks to humans.

Q5. (Behavioral Intentions) This set of items asks your behavioral intentions. Please rate your level agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

5.1 If the state (SC) allows for medical marijuana use, I may use medical marijuana.
5.2 If the state (SC) allows for recreational use of marijuana, I may use recreational marijuana.

Q6. (Support for medical marijuana and marijuana legalization) This set of items asks your opinion toward public policy about marijuana legalization. Please rate your agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

6.1 I support that marijuana should be legalized for medical use.

6.2 I support that marijuana should be legalized for recreational use as well as medical use.

Q7. (Marijuana experience) This question is only for the scholarly purpose. Your responses will be kept confidentially. The next set of items asks you to rate how frequently you personally use each of substances (marijuana, tobacco, and alcohol).

(1 = I have never used this, 2 = I have used this in the past, but I quit, 3 = less than once a month, 4 = Once a month, 5 = 2-3 times a month, 6 = Once a week, 7 = 2-3 times a week, 8 = 4-5 times a week, 9 = Almost daily)

7.1 Marijuana
7.2 Tobacco
7.3 Alcohol

Q8. (Ethnicity) Which of the following best describes your ethnicity?

a. White/Caucasian
b. African American
c. Hispanic
d. Asian
e. Native American
f. Pacific Islander
g. Other

Q9. (Gender) What is your gender?
a. Male
b. Female

Q10. (Age) What is your age? _____

Q11. (Political View) Please rate your level agreement with the following statements.

(1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree)

11.1 I would describe my political views as liberal.
11.2 I would describe my political views as conservative.

APPENDIX C: EXPERIMENTAL STIMULI

Study 1: *Legislation*

Congress and Obama Are

www.nytimes.com/2015/08/09/opinion/sunday/congress-and-obama-have-been-too-timid-on-marijuana-reform.html

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SundayReview | EDITORIAL

Congress and Obama Are Too Timid on Marijuana Reform

By THE EDITORIAL BOARD AUG. 8, 2015 376 COMMENTS

Golden Cosmos

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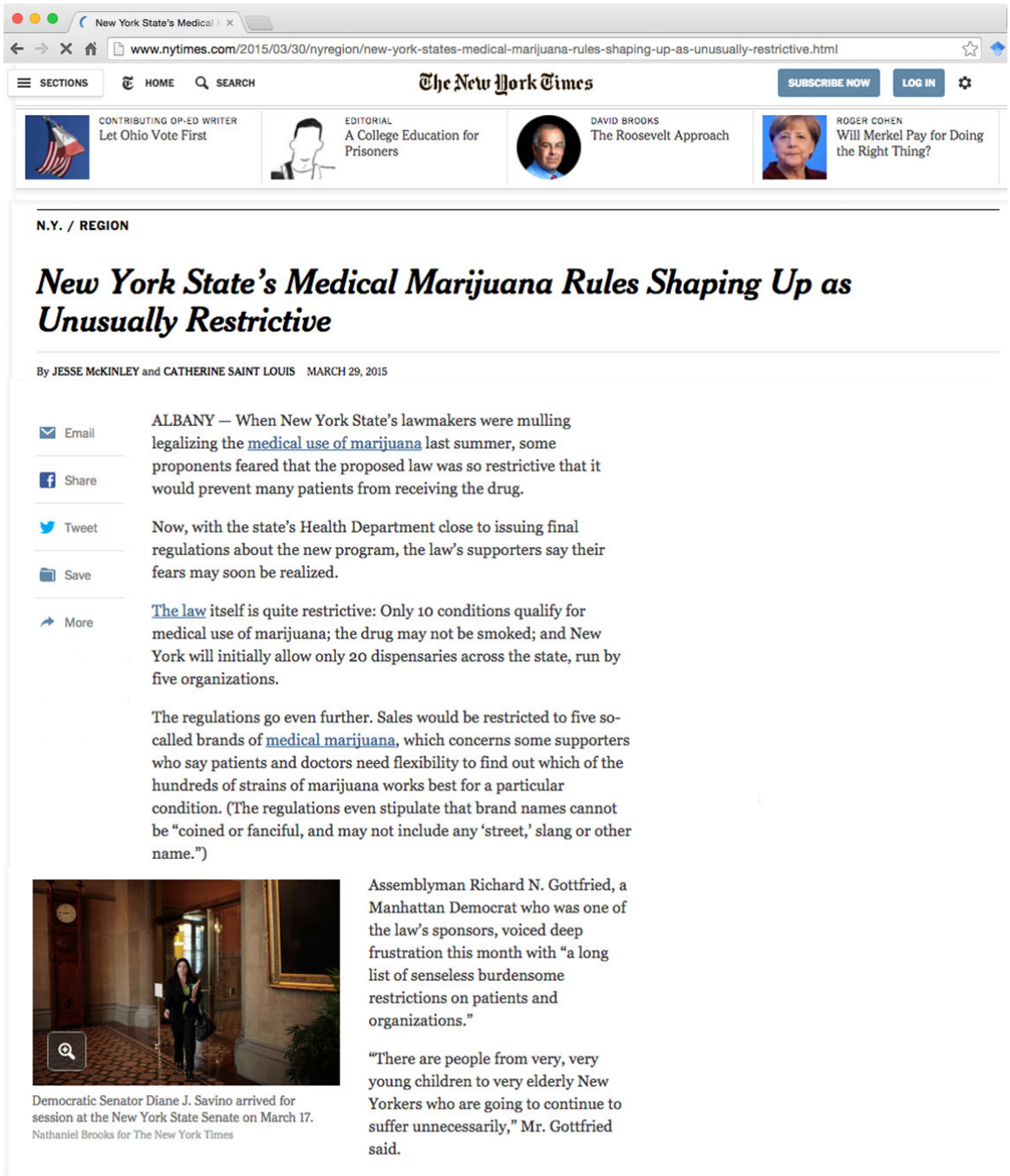
Even as support for ending marijuana prohibition is building around the country, Congress and the Obama administration remain far too timid about the need for change.

Last year, residents in Alaska, Oregon and the District of Columbia voted to join Colorado and Washington State in making recreational use of marijuana legal. Later this year, residents of Ohio are expected to vote on a ballot measure that would legalize it. Nevadans will vote on a legalization proposal next year. And Californians could vote on several similar measures next year.

Instead of standing by as change sweeps the country, federal lawmakers should be more actively debating and changing the nation's absurd marijuana policies, policies that have ruined millions of lives and wasted billions of dollars. Their inaction is putting businesses and individuals in states that have legalized medical and recreational marijuana in dubious legal territory — doing something that is legal in their state but is considered a federal crime. Many growers, retailers and dispensaries also have to operate using only cash because many banks will not serve them, citing the federal prohibition. Recently, the Federal Reserve denied a master account to a credit union in Colorado seeking to provide financial services to marijuana businesses.

Study 1: *Law Enforcement*



New York State's Medical

www.nytimes.com/2015/03/30/nyregion/new-york-states-medical-marijuana-rules-shaping-up-as-unusually-restrictive.html

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New York State's Medical Marijuana Rules Shaping Up as Unusually Restrictive

By JESSE McKINLEY and CATHERINE SAINT LOUIS MARCH 29, 2015

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ALBANY — When New York State's lawmakers were mulling legalizing the medical use of marijuana last summer, some proponents feared that the proposed law was so restrictive that it would prevent many patients from receiving the drug.

Now, with the state's Health Department close to issuing final regulations about the new program, the law's supporters say their fears may soon be realized.

The law itself is quite restrictive: Only 10 conditions qualify for medical use of marijuana; the drug may not be smoked; and New York will initially allow only 20 dispensaries across the state, run by five organizations.

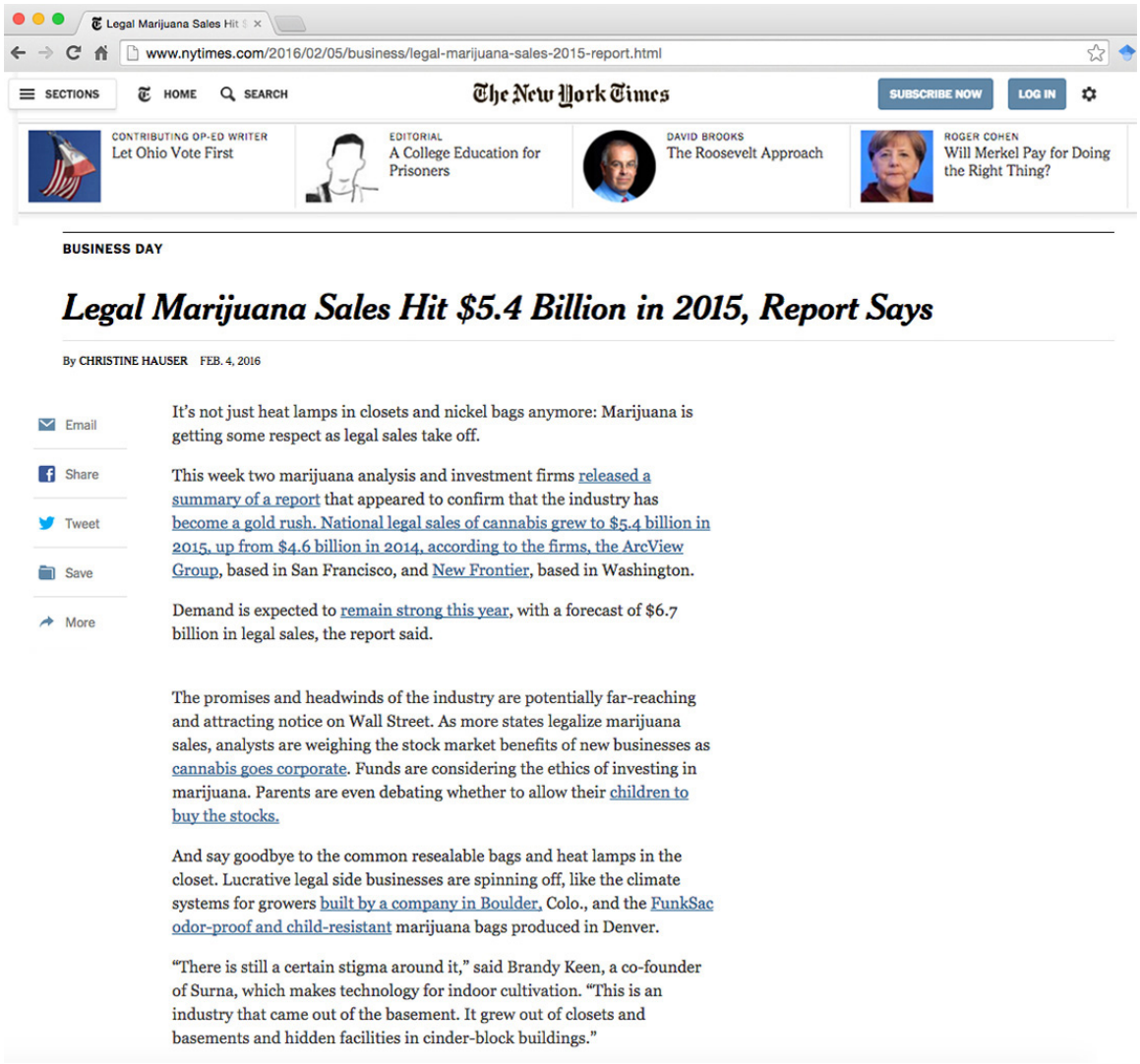
The regulations go even further. Sales would be restricted to five so-called brands of medical marijuana, which concerns some supporters who say patients and doctors need flexibility to find out which of the hundreds of strains of marijuana works best for a particular condition. (The regulations even stipulate that brand names cannot be "coined or fanciful, and may not include any 'street,' slang or other name.")

Democratic Senator Diane J. Savino arrived for session at the New York State Senate on March 17.
Nathaniel Brooks for The New York Times

Assemblyman Richard N. Gottfried, a Manhattan Democrat who was one of the law's sponsors, voiced deep frustration this month with "a long list of senseless burdensome restrictions on patients and organizations."

"There are people from very, very young children to very elderly New Yorkers who are going to continue to suffer unnecessarily," Mr. Gottfried said.

Study 1: *Economy*



Legal Marijuana Sales Hit $ ×

www.nytimes.com/2016/02/05/business/legal-marijuana-sales-2015-report.html

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The New York Times

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BUSINESS DAY

Legal Marijuana Sales Hit $5.4 Billion in 2015, Report Says

By CHRISTINE HAUSER FEB. 4, 2016

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It's not just heat lamps in closets and nickel bags anymore: Marijuana is getting some respect as legal sales take off.

This week two marijuana analysis and investment firms released a summary of a report that appeared to confirm that the industry has become a gold rush. National legal sales of cannabis grew to $5.4 billion in 2015, up from $4.6 billion in 2014, according to the firms, the ArcView Group, based in San Francisco, and New Frontier, based in Washington.

Demand is expected to remain strong this year, with a forecast of $6.7 billion in legal sales, the report said.

The promises and headwinds of the industry are potentially far-reaching and attracting notice on Wall Street. As more states legalize marijuana sales, analysts are weighing the stock market benefits of new businesses as cannabis goes corporate. Funds are considering the ethics of investing in marijuana. Parents are even debating whether to allow their children to buy the stocks.

And say goodbye to the common resealable bags and heat lamps in the closet. Lucrative legal side businesses are spinning off, like the climate systems for growers built by a company in Boulder, Colo., and the FunkSac odor-proof and child-resistant marijuana bags produced in Denver.

"There is still a certain stigma around it," said Brandy Keen, a co-founder of Surna, which makes technology for indoor cultivation. "This is an industry that came out of the basement. It grew out of closets and basements and hidden facilities in cinder-block buildings."

Study 1: *Medical effect*

The Upshot

How 'Medical' Is Marijuana?

Aaron E. Carroll
THE NEW HEALTH CARE JULY 20, 2015

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It is becoming easier to get marijuana, legally. In the last 20 years or so, 23 states, as well as the District of Columbia, have passed laws that make it legal to use marijuana for medical treatments. So have some countries, like Austria, Canada, Finland, Germany, Israel and Spain.

Advocates believe that this has allowed many with intractable medical problems to receive a safe and effective therapy. Opponents argue that these benefits are overblown, and that advocates ignore the harms of marijuana. Mostly, opponents say that the real objective of medical marijuana is to make it easier for people to obtain it for recreational purposes.

Both sides have a point. Research exists, however, that can help clarify what we do and don't know about medical marijuana.

A recent systematic review published in The Journal of the American Medical Association looked at all randomized controlled trials of cannabis or cannabinoids to treat medical conditions. They found 79 trials involving more than 6,400 participants. A lot of the trials did show some improvements in symptoms, but most of those did not achieve statistical significance. Some did, however.

Medical marijuana was associated with some pretty impressive improvements in complete resolution of nausea and vomiting due to chemotherapy (47 percent of those using it versus 20 percent of controls). It also increased the number of people who had resolution of pain (37 percent up from 31 percent). It was shown to reduce pain ratings by about half a point on a 10-point scale, and to reduce spasticity in multiple sclerosis or paraplegia in a similar manner.

Study 2: Support Frame

U.S.

Marijuana Use Should be Legalized

By RICK LYMAN FEB. 26, 2014

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After Colorado and Washington legalized marijuana, more than half the states are considering decriminalizing the drug or legalizing it for medical or recreational use. That has set up a watershed year in the battle over whether marijuana should be as available as alcohol.

The strongest evidence for the health benefits of medical marijuana or its derivatives involves the treatment of chronic neuropathic pain and the spasticity caused by multiple sclerosis.

"Medical experts emphasize the need to reclassify marijuana as a Schedule II drug to facilitate rigorous scientific evaluation of the potential therapeutic benefits of cannabinoids and to determine the optimal dose and delivery route for conditions in which efficacy is established," Diane E. Hoffmann and Ellen Weber, legal experts at the University of Maryland, wrote in The New England Journal of Medicine.

Advocates maintain that legalization would provide a new stream of revenues for government cut down on drug-related violence and end a modern-day prohibition that effectively turns many citizens into lawbreakers. They say making marijuana legal for the general population would reduce crime against those who use it for medical reasons. "It's a lot better than being arrested and thrown in jail." "This tax," Mr. Griffin, co-founder of West Coast Wellness, said, "is a lot cheaper than lawyers."

Legalization would move that trade into the open market, driving down the price and undermining the cartels' power and influence. The allure of tax revenues is also becoming a powerful selling point in some states, particularly after Gov. John W. Hickenlooper of Colorado said that taxes from legal marijuana sales would be $134 million in the coming fiscal year, much higher than had been predicted when the measure was passed in 2012.

Study 2: Opposition Frame

U.S.

Marijuana Use Should Not be Legalized

By RICK LYMAN FEB. 26, 2014

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After Colorado and Washington legalized marijuana, more than half the states are considering decriminalizing the drug or legalizing it for medical or recreational use. That has set up a watershed year in the battle over whether marijuana should be as available as alcohol.

The best studies of marijuana's effects on humans have so far shown little objective evidence of benefit in patients with epilepsy or multiple sclerosis. There is no good scientific evidence that legalizing marijuana's use provides any benefits over current therapies.

"Marijuana is illegal," said Rogene Waite, a spokeswoman for the Drug Enforcement Administration, adding, "There has been no scientific determination by the federal government that there is any such thing as medical marijuana."

Opponents maintain that legalizing would increase crime around dispensary locations, lead to more people driving while impaired and eventually lead to legalized marijuana for everyone. Sheriff Youngblood (Kern County, CA) says that marijuana has been a destructive force in the country, destroying public lands – where growers often plant – and bringing into an otherwise largely peaceful rural environment an influx of weapons as a result of what he says are criminal cartels involved in the drug trade. He rejects the notion that somehow sick people are being denied succor. "This marijuana issue is about money," he said, "not about medicine."

The rising use and increased potency could affect the likelihood of car accidents and could lower school performance. Studies show that the concentration of THC in marijuana, its psychoactive ingredient, has tripled since the early 1990s, and Dr. Volkow said there was concern that the rising use and increased potency could affect the likelihood of car accidents and could lower school performance.

Study 2: Two-Sided Frame

U.S.

Pivotal Point Is Seen as More States Consider Legalizing Marijuana

By RICK LYMAN FEB. 26, 2014

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After Colorado and Washington legalized marijuana, more than half the states are considering decriminalizing the drug or legalizing it for medical or recreational use. That has set up a watershed year in the battle over whether marijuana should be as available as alcohol.

The strongest evidence for the health benefits of medical marijuana or its derivatives involves the treatment of chronic neuropathic pain and the spasticity caused by multiple sclerosis.

Opponents, however, maintain that there is no good scientific evidence that legalizing marijuana's use provides any benefits over current therapies.

Advocates maintain that legalization would provide a new stream of revenues for government cut down on drug-related violence and end a modern-day prohibition that effectively turns many citizens into lawbreakers.

They also say making marijuana legal for the general population would reduce crime against those who use it for medical reasons. "It's a lot better than being arrested and thrown in jail." "This tax," Mr. Griffin, co-founder of West Coast Wellness, said, "is a lot cheaper than lawyers."

Legalization would move that trade into the open market, driving down the price and undermining the cartels' power and influence. The allure of tax revenues is also becoming a powerful selling point in some states, particularly after Gov. John W. Hickenlooper of Colorado said that taxes from legal marijuana sales would be $134 million in the coming fiscal year, much higher than had been predicted when the measure was passed in 2012.

On the contrary, opponents maintain that legalizing would increase crime around dispensary locations, lead to more people driving while impaired and eventually lead to legalized marijuana for everyone. Sheriff Youngblood (Kern County, CA) says that marijuana has been a destructive force in the country, destroying public lands – where growers often plant – and bringing into an otherwise largely peaceful rural environment an influx of weapons as a result of what he says are criminal cartels involved in the drug trade. "This marijuana issue is about money," he said, "not about medicine."

The rising use and increased potency could affect the likelihood of car accidents and could lower school performance. Studies show that the concentration of THC in marijuana, its psychoactive ingredient, has tripled since the early 1990s, and Dr. Volkow said there was concern that the rising use and increased potency could affect the likelihood of car accidents and could lower school performance.

Study 2: Control

APPENDIX D: INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH APPROVAL LETTER

UNIVERSITY OF SOUTH CAROLINA

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for EXEMPT REVIEW

This is to certify that the research proposal: **Pro00054126**

Entitled: *Experimentally Testing the Effects of News Framing of Marijuana Legalization*

Submitted by:

Principal Investigator:	Hwalbin Kim
College/Department:	Information & Communications Journalism & Mass Communications 800 Sumter Street Columbia, SC 29208

was reviewed in accordance with 45 CFR 46.101(b)(**2**), the referenced study received an exemption from Human Research Subject Regulations on **3/25/2016.** No further action or Institutional Review Board (IRB) oversight is required, as long as the project remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research protocol could result in a reclassification of the study and further review by the IRB.

Because this project was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

Research related records should be retained for a minimum of three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,

Lisa M. Johnson
IRB Manager