Taking the Initiative: Connecting Medical Marijuana Referenda and the Opioid Crisis

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INTRODUCTION:

Marijuana laws and the opioid crisis are two of the most discussed subjects in 2018. Opioids are gaining a reputation for disaster as the death toll rises due to their potency. The opioid crisis is only growing and local, state, and federal governments are rushing to find any sort of solution. Meanwhile, the percentage of Americans who support medical and recreational marijuana is growing rapidly. (Geiger, 2016). A Gallup poll from October 2018 states that 64% of Americans support total marijuana legalization (Reinhart, 2018). With these facts in mind, this study is interested in determining if the opioid crisis influenced the passage of medical marijuana laws in reliably conservative states? Has the debate around medical marijuana referenda been shaped by reference to marijuana as an alternative to opioids? The author will content analysis of major news outlet online editions to shed light on these questions.

This study intends to use a qualitative research method for measuring online media framing of the idea that medical marijuana as a pain management alternative for opioid prescriptions. The proposed relationship between the opioid crisis and the proliferation of marijuana legalization in the United States could be the slow integration of medical marijuana into a mainstream treatment for ailments of many different kinds. The substitution of marijuana for other prescriptions seems to be a prominent theme in the debate of marijuana legalization. The market for medical marijuana, as with any sort of medicine, will be based on personal and physician preference. Allowing medical marijuana could potentially be an effective way to combat the use and prescribing of opioids. The author is interested in evaluating news articles from three different reliably conservative states to study the connection between the support for substituting medical marijuana for other prescriptions. The author will analyze this through articles on online media outlets to determine if media framing supporting marijuana as a prescription alternative is present in the articles.

There have been very few studies done on the effects marijuana policy has had on rates of opioid prescriptions. There are a few challenges associated with studying these two topics. The first being that prescription information is generally confidential to a certain extent, as well as health records. Additionally, very few people who use medical marijuana are willing to admit to using it, as marijuana is still a schedule I dangerous controlled substance at the federal level (DEA, 2018).

Regardless, one study has been conducted by David Bradford and Ashley Bradford which was published in *Health Affairs*. The authors were interested in determining if medical marijuana laws were associated with lower rates of prescriptions for Medicaid enrollees. The authors went about measuring this question based on the prescription rates gathered from Medicaid prescription data from 2011 to 2013. The study found that prescription rates for drugs that could be replaced with medical marijuana fell after the implementation of medical marijuana laws (Bradford & Bradford, 2016).

LITERATURE REVIEW:

Opioids are a class of drugs intended to reduce pain (CDC, 2017). Opioids are present in many pain relievers such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, methadone, and many others. Illicit street drugs can also be classified as opioids, such as heroin or fentanyl. Fentanyl is made with synthetic opioids (CDC, 2017). Opioids have also been advertised for pain management since the early 1990s. During this time, pharmaceutical companies and assured doctors the prescriptions were not addictive. Almost 30 years later overdose rates make it very clear that was untrue. All opioids have been proven to be highly addictive, and many patients who have been prescribed opioids for pain management can still

easily become dependent on the drug who do not intend to abuse the drug on purpose. (Kolodny et al., 2015, p. 560-562).

Opioids are derived from the opium poppy plant, papaver somniferum. Addiction happens quickly and easily with opioid use due to the way opioids perform their pain relieving function. Opioids work by binding to opioid receptors in the human brain, and releasing psychoactive chemicals (ASAM, 2015, p. 12). These receptors are not only in the brain; additionally, they are in the spinal cord and many other portions of the body. When these receptors are activated they block pain, and instead emit euphoric hormones through the body. These euphoric hormones work by implementing positive reinforcement on the mind. Similarly, when the user does not use opioids, the mind experiences negative reinforcement, and causes the user to desire the drug more. (Kolodny et al., 2015).

Data from the Center for Behavioral Health Statistics and Quality states that in 2015 at least 2 million people in the United States became addicted to prescription opioid pain relievers (CBHSQ, 2015). A study conducted by the Center for Disease Control found in 2015 at least 33,091 Americans died from opioid use (CDC, 2016). A study on emergency department billing data on opioid involved overdoses in 2017 by the CDC found that from 2015 to 2016 opioid overdose deaths increased 27.7%. (CDC, 2017). The market research firm IMS Health has found that nationwide the number of opioid prescriptions has increased from 112 million in 1992 to 292 million in 2012. Additionally, the number of prescriptions has fallen to 236 million in 2016. (CNN, 2018).

These numbers certainly show the dangers of the opioid crisis. Opioids are highly addictive due to the fact they release dopamine into the body, and this causes the user to experience a sort of "high". When an individual stops taking the pills, they will experience withdrawal symptoms.

The addictive nature of the opioids coupled with the fact the human body builds up a tolerance which requires an individual to take more opioids over time to experience the same effect are both facts which have contributed greatly to the proliferation of the opioid crisis (ASAM, 2015, p. 14).

Due to the dangerous and addictive nature of opioids, medical marijuana could potentially be a viable option to substitute for opioid prescriptions. A previously mentioned study of Medicaid part D in US states which have medical marijuana policies found the number of Medicaid prescriptions which treated pain, depression, anxiety, nausea, psychoses, seizures and sleep disorders, were all going down. Prescriptions for chronic pain fell by more than 11% (Bradford & Bradford, 2016).

Marijuana is a drug which is derived from the green leafed cannabis plant which produces marijuana flowers. These flowers can be dried and ground up into a substance to be smoked, or boiled into other compounds in order to cook the THC into food. Marijuana when ingested or inhaled produces tetrahydrocannabinol, or THC, as well as cannabidiol, or CBD. THC is mind altering, yet CBD has no mind altering properties. (CDC, 2018) CBD has been shown to improve chronic pain, and even stop epileptic episodes. A study in 2014 suggested CBD could be effective for a "wide range of central nervous system disorders" (Devinsky, 2014).

Medical marijuana is the use of the cannabis plant for medical purposes. There have been limited studies on this topic, mainly because the drug is federally illegal. Marijuana has been reported to be therapeutic for a long list of conditions. In a Canadian study of medical marijuana patients, the patients reported that marijuana was helpful for the treatments of chronic pain, arthritis, insomnia, headaches, multiple sclerosis, psychiatric disorders, PTSD, and eating disorders. These patients reported that marijuana was effective in curbing their symptoms 95% of the time (Lucas et al., 2017)

Another portion of the survey inquired about whether or not the patient had substituted cannabis for other prescription drugs, alcohol, tobacco/nicotine or illicit substances, and 71% of participants reported they had done so. 63% reported substitution for prescription medications, 25% for alcohol, 12% for tobacco/nicotine, and 3% for illicit substances. 32% of those who reported substituting cannabis for prescription drugs were specifically substituting cannabis for opioids. 68% of these study participants also noted that cannabis did not give them any adverse side effects (Lucas et al., 2017)

A push for medical marijuana laws began in the early 1990s after the criminalization caused by legislation during the Nixon administration (Burnett et al., 2014). At the federal level, marijuana is still a schedule 1 drug, as per the Controlled Substances Act of 1970. This means marijuana is considered by the federal government to have no medical use, a lack of accepted safety data for use of medical treatment, and has high potential to be addictive (Bridgeman & Abazia, 2017, p. 180). Research has since begun to refute this claim, however, since marijuana is still federally illegal research on the drug is still scarce.

One of the first developments in marijuana research occurred in 1990 when Dr. Miles Herkenham, Senior Investigator at the National Institute of Mental Health, discovered cannabinoid receptors in the brain alongside his team. This led to the discovery of THC binding to these cannabinoid receptors in the brain, which allowed the further study of pharmacological effects of cannabis on humans. (Herkenham et al., 1990)

Meanwhile, also in 1990, a study was done which used an anonymous random survey was conducted from the American Society of Clinical Oncology which sought to find attitudes of oncologists towards patients who used marijuana during their chemotherapy treatments. The results found 44% of oncologists had suggested the illegal use of marijuana during their treatment,

48% of respondents admitted they would recommend marijuana to their patients if it was legal, and 54% of respondents believed marijuana for medical purposes should be legal. (Kleiman & Doblin, 1991)

In 1996 California became the first state to pass medicinal marijuana into law with proposition 215. This proposition made legal the right of a patient or their caregiver to possess or cultivate marijuana for conditions such as AIDs, cancer, muscle spasticity, migraines, and several other conditions. This proposition also protected physicians from being prosecuted if they prescribed marijuana for medicinal purposes. (Collingwood, O'Brien & Dreier, 2016, p. 1). Proposition 215 was only the beginning of the medical marijuana revolution.

Since 1990, 32 state have medical marijuana legislation in 2018, including: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, DC, Florida, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and West Virginia. Some states have even adopted recreational policies including: Alaska, California, Colorado, DC, Maine, Massachusetts, Nevada, Oregon, Vermont, Washington (Hanson et al., 2018).

The most recent of these states to legalize marijuana have been Missouri, Oklahoma, and Utah. On June 26th, 2018 the residents of Oklahoma passed State Question 788 into law. State Question 788 passed with 56% of the vote (Oklahoma Primary Election Results, 2018). State Question 788 was very simple, it allows medical cards to be distributed by licensed physicians with no qualifying conditions, allows home growing of six mature plants and seedlings, allows card holders the legal possession of three ounces of marijuana and one ounce of concentrate on

their person, allows the possession of seventy-two ounces of edible marijuana, and allows the possession of up to eight ounces of marijuana in a residence (State Question 788, Oklahoma, 2018).

State question 788 also allows a person who can provide proof of a medical condition eased by the use of marijuana who does not have a medical license to be fined, not more than $400. The question also institutes fees for obtaining a medical marijuana license--as a patient or a dispensary. The Department of Health is responsible for the handling of licensure and approval or disapproval of applications. It is also possible for a caregiver to obtain a 'caregivers license' which provides the same rights as a medical marijuana card holder. Additionally, state question 788 provides a guideline for licensure of marijuana dispensaries (State Question 788, Oklahoma, 2018).

On November 6th 2018, Utah passed Proposition 2 with 52% of the vote (Utah Election Results, 2018) Proposition 2 would allow access to medical marijuana for those who had qualifying debilitating health conditions. The most interesting part about proposition 2 is the fact that the Gary Herbert, governor of Utah, has already called for a special session regardless of the outcome of the vote. Governor Herbert has stated he chose to call the special session because he wants to ensure citizens of Utah have access to medical marijuana regardless of the outcome of the vote.

Additionally, Proposition 2 is somewhat different from Oklahoma's state question 788 in the fact that the state of Utah has already required that by January 2019 medical a state facility to be established to cultivate marijuana to be used for medicinal purposes. Under this current law, marijuana can be grown, processed, and possessed only by the state of Utah. The state is able to sell this marijuana to 'qualified research institutions' or distributed to patients who are terminally ill who have been determined to have less than six months to live. Proposition 2 simply adds to

the current marijuana laws by allowing four different types of cannabis facilities: cultivation facilities, processing facilities, testing facilities, and dispensaries (Proposition 2, 2018).

Proposition 2 will also require Utah to license and regulate the facilities. Additionally, an inventory control system is established which requires video recording system will be implemented in all marijuana facilities as well as a cap on how much medical cannabis can be sold. There will also be a cap on the number of facilities that may be licensed to sell or grow marijuana, as well as the types of products which can be sold or processed. A few additional details included in Proposition 2 are the fact that a medical user is not permitted are smoking cannabis, using cannabis while operating any motor vehicle, having proof of medical card, and can only carry limited amounts of cannabis on their person outside their home which must be labeled. Those who have a medical card are allowed to grow up to six plants, but only if there is no licensed dispensary within 100 miles of their residence. Proposition 2 also allows for a medical card carrier to choose two people to help acquire or grow cannabis with a physician's determination the person's condition necessitates assistance in this process. Medical marijuana sold by the state of Utah is exempt from state and local sales taxes, though licensure will have fees associated with it (Utah Proposition 2, 2018).

Missouri is perhaps the most complicated cases of medical marijuana passage to date. There were three separate medical marijuana initiatives for voters on the Missouri ballot in November. The first of which, was Amendment 2. Amendment 2 would amend the Missouri Constitution to allow medical marijuana use, and create regulations and licensing processes for facilities involved in the marijuana industry. This amendment would also implement a four percent tax on retail sales, and appropriate these funds to Missouri Veteran services, as well as the Missouri

Department of Health and Senior Services for the process to fund the licensure and certification of marijuana facilities (Missouri State Ballot Measures, 2018).

Similarly, Amendment 3 would also amend the Missouri Constitution to allow the use of medical marijuana. It would also create regulations and licensing processes, as well as impose a fifteen percent tax on retail sales. There is also a fifteen percent tax on the wholesale of marijuana (per dry-weight ounce) to licensed facilities. The funds from the taxation would be utilized to create and fund a state research center to discover cures for cancer and other incurable medical conditions or disease treatments (Missouri State Ballot Measures, 2018).

Finally, Proposition C would repeal state prohibition on personal use and possession of marijuana for medical purposes. A written consent from a physician is required, as well as for the patient to present with a qualifying medical condition. The prohibition on growth, production, and possession of medical marijuana by licensed facilities is also repealed. This proposition would also impose a two percent tax on the retail sale of medical marijuana. The funds from the taxation would be utilized to fund veterans' services, education, public safety in cities with medical facilities, and drug treatment (Missouri State Ballot Measures, 2018).

Amendment 2 passed with 65.5% of the total vote. Proposition C secured 43.5% of the in favor of the vote, and Amendment 3 only received 31.4% in favor of the vote (State of Missouri, 2018). Had both of the Constitution amendments passed, the one with the higher percentage of votes in favor would have superseded the other. It is also the case that both amendments would have superseded Proposition C if all three happened to pass (Marso, 2018).

The most interesting fact about the recent medical marijuana passages in Missouri, Oklahoma, and Utah this November is the fact that these states are generally reliably conservative in Presidential elections. A Presidential election is perhaps the best measure of the political

ideologies of the entire state, as the electoral votes are based on state majority vote. Missouri, Oklahoma, and Utah have voted Republican since the 2000 election.

In the 2000 Presidential elections, 50.4% of Missouri voters opted for George Bush. In Oklahoma, 60.3% of voters opted for George Bush. In Utah, 66.8% of voters opted for George Bush. In the 2000 Presidential elections, 53.3% of Missouri voters opted for George Bush. In Oklahoma, 65.6% of voters opted for George Bush. In Utah, 71.5% of voters opted for George Bush. In the 2008 Presidential elections, 49% of Missouri voters opted for John McCain. In this year, Missouri was considered a battleground state. In Oklahoma, 66% of voters opted for John McCain. In Utah, 62% of voters opted for John McCain (New York Times, 2008). In the 2012 Presidential elections, 67% of Oklahoma voters opted for Mitt Romney, 54% of Missouri voters opted for Mitt Romney, and 73% of Utah voters opted for Mitt Romney (New York Times, 2012) In the 2016 Presidential elections, 56% of voters opted for Donald Trump, 65% of voters in Oklahoma voted for Donald Trump, and in Utah 45% of voters voted for Donald Trump (New York Times, 2016). This data shows that these states can be considered reliably conservative based on voting percentages from the past three Presidential elections.

RESEARCH METHODS:

The author will be evaluating different online news publications in each of the aforementioned states, Missouri, Oklahoma, and Utah, in order to determine whether these medical marijuana laws were passed due to media framing related to the opioid crisis. The research method the author will be using is content analysis, using descriptive statistics to measure and analyze the article selection which is intended to be a representative sample of the how online media in each state framed the debate on each state referendum. The goal of this

measure is to test the hypothesis of whether or not the media's framing of these medical

marijuana laws in each state had any relation to the opioid epidemic.

Article Selection:

In order to measure the media perceptions of medical marijuana laws across the states of

Oklahoma, Missouri, and Utah, five articles were selected from major local or state news

publications from each state. It was important to single out state news outlets, in order to avoid

coding national coverage. Article selection would have ideally been randomized, but in light of

lack of time and resources this was not possible. Instead, articles were chosen by most relevant

search results (articles which appear first) in popular news publications across each state.

The news sources included in article analysis from each state are as follows:

> **Missouri:** Columbia Tribune, The Examiner, News Tribune, Kansas City Star.
>
> **Oklahoma:** NewsOK, Tulsa World, Norman Transcript, The Oklahoman.
>
> **Utah:** Deseret News, KUER (NPR Utah at University of Utah), Standard-
>
> Examiner, Daily Herald, Salt Lake Tribune.

The articles from the online news sources which were selected are meant to represent a

sample of the way media has framed the arguments for or against these state referendums. These

articles will be sought out using a Google Boolean search technique intended to seek out exact

phrases. For example, the search will include "state question 788" and "Oklahoma" (Refine web

searches, 2018). The search will also be confined to articles written before the date of passage for

these laws. Oklahoma articles will be before June 26th, 2018, and Missouri and Utah November

6th, 2018 in order to ensure relevance of articles published before the vote occurred.

Article Analysis:

A total of five articles per state were analyzed. Each of the 5 selected articles were be coded. These articles were coded by selecting three different categories and coding different words which apply to said category. The first category is explicit mention of marijuana as a possible solution to the opioid crisis, the second is implicit mention of marijuana as a possible pain medication alternative, and the third is related mention of treatments for other illnesses or ailments. Each time a paragraph from an article referenced some relevant phrase which showed a relation to one of the three categories, the phrase is numerically referenced on the chart. The phrases were measured by paragraphs. The frequency in which the phrases fell into each category were tallied for each article in a chart.

The section below includes category specific examples from different articles coded from each state. Examples of sentences which satisfied the first category of explicit mention of marijuana as a possible solution to the opioid crisis were similar to the following:

'Supporters of medical marijuana say cannabis is a better choice than opioids for the many people suffering from chronic pain and illness.' (Hampton, 2018).

'Marijuana is not as addictive as strong narcotics or painkillers, though it can be habit-forming. And any activity involving the inhalation of burned material is harsh on the lungs.' (Schmitt, 2018). (Note the mention of painkillers and narcotics, which led to author to the decision to categorize this quote into the explicit category rather than the implicit category--which is intended for implicit mention of chronic pain or pain relief)

'Can medical cannabis help address the opioid epidemic in Utah? Yes. A 2014 study published in the Journal of the American Medical Association found that, between 1999 and 2010, states

with medical cannabis laws had a 24.8% lower rate of opioid overdose deaths than states without medical cannabis laws. — Utah Patients Coalition' (Rodgers, 2018).

Examples of sentences that satisfied the second category of implicit mention of marijuana as a possible pain medication alternative were similar to the following:

'For Jane, the possibility of being able to legally provide her son some relief from his pain outweighs all other considerations about State Question 788 and illustrates the dilemma many patients and medical providers find themselves in.' (Palmer, 2018).

'Missouri should follow the majority of other states, as well as the sentiment of nearly 3/4 of Americans surveyed, and legalize medical marijuana. There is strong evidence indicating cannabinoids provide significant relief from chronic pain.' (Marso, 2018).

'"They totally ignored us five years ago," said Kathy Marriott, who's been active on the issue for several years, in part because the substance has helped her daughter deal with chronic pain.' (Vandenack & Dorger, 2018).

Examples of sentences that satisfied the third category of related mentions of treatments for other illnesses or ailment were similar to the following:

"I can assure you, I'm not some out there crazy doctor, kook, quack. It's based on solid evidence, solid science and empirical and clinical experience that I've had and many of my colleagues in states that I've trained in where we've had cannabis for medicinal use available, " he said. "I've seen remarkable changes in my own patients. It's really an essential tool for doctors to have." (Ellis, 2018).

'"Amendment 2 is completely centered around what is best for Missouri patients," campaign spokesman Jack Cardetti said. "That is the real difference here. We wanted to make sure cancer patients, epilepsy patients and others have access to safe, responsible marijuana."' (Keller, 2018).

'"His last large seizure episode was two years ago," Lundgren said. "His absence seizures have stopped. He is down to a low dose of one medication other than the CBD. He is verbal and he is potty trained."' (Pugmire, 2018).

The total number of paragraphs in each article were calculated, as well as the amount of times a phrase which fit into a category was mentioned. The percentage of phrases which related to the categories in the article was found by dividing the number of times phrases fell into each category in the article by the total number of paragraphs in the article. This process was repeated for the total number of relevant phrases which fell into each category found in articles analyzed for each state, divided by the total amount of paragraphs analyzed for each article in the state to determine the percentages of times a phrase fell into each category in the media analysis of the as a whole.

Chart example design:

State

Article Title & Source	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category			
Total paragraphs in article			

% of article which is relevant to category			

RESULTS:

The charts for the coding of articles in each state are provide below:

Missouri

Article 1: "In their own words: Missouri leaders, including a toxicologist, on medical marijuana" *The Kansas City Star*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	4	3	24
Total paragraphs in article	128	128	128
% of article which is relevant to category	3.13%	2.34%	18.75%

Article 2: "Competing plans complicate medical pot legalization" *Columbia Daily Tribune*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	0	0	1
Total paragraphs in article	41	41	41
% of article which is relevant to category	0%	0%	2.44%

Article 3: "Have questions about your medical marijuana votes in Missouri? Here are some answers" *Springfield News-Leader*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	1	0	6
Total paragraphs in article	64	64	64

% of article which is relevant to category	3.13%	0%	9.38%

Article 4: "Competing marijuana issues on Missouri ballot" *The Examiner*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	0	0	3
Total paragraphs in article	21	21	21
% of article which is relevant to category	0%	0%	14.29%

Article 5: "3 medical marijuana initiatives await voters" *News Tribune*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	0	0	6
Total paragraphs in article	33	33	33
% of article which is relevant to category	0%	0%	18.18%

Oklahoma

Article 1: "Speeches and music highlight pro-medical marijuana rally in Norman" *NewsOK.com*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	0	2	4
Total paragraphs in article	26	26	26
% of article which is relevant to category	0%	7.69%	15.38%

Article 2: "Medical marijuana initiative under way with SQ 788" *Norman Transcript*	Explicit:	Implicit:	Related:

Frequency of phrases falling into each category	5	1	6
Total paragraphs in article	27	27	27
% of article which is relevant to category	18.52%	3.70%	22.22%

Article 3: "A key question for state voters: How medicinal is medicinal marijuana?" *Tulsa World*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	4	1	9
Total paragraphs in article	45	45	45
% of article which is relevant to category	8.89%	2.22%	20%

Article 4: "Oklahoma's medical marijuana law would be unique" *NewsOK*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	1	0	0
Total paragraphs in article	35	35	35
% of article which is relevant to category	2.86%	0%	0%

Article 5: "States, federal government, doctors disagree over medical marijuana benefits" *NewsOK*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	2	0	6
Total paragraphs in article	31	31	31
% of article which is relevant to category	6.45%	0%	19.35%

Utah

Article 1:	Explicit:	Implicit:	Related:

"Weber Co. medical marijuana boosters heighten efforts as Prop 2 debate sizzles" *Standard-Examiner*			
Frequency of phrases falling into each category	5	3	0
Total paragraphs in article	27	27	27
% of article which is relevant to category	22.22%	11.11%	0%

Article 2: "13 things voters should know about Utah's medical marijuana initiative" *Deseret News*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	1	1	4
Total paragraphs in article	123	123	123
% of article which is relevant to category	1.63%	1.63%	5.69%

| Article 3: "We fact-checked claims made about medical marijuana leading up to the election" *Salt Lake Tribune*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	4	0	4
Total paragraphs in article	48	48	48
% of article which is relevant to category	8.33%	0%	8.33%

| Article 4: "Prop. 2 supporters dig in as coalition rushes to create alternative medical marijuana legislation before November election" *Daily Herald*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	1	0	12
Total paragraphs in article	48	48	48

% of article which is relevant to category	2.08%	0%	25%

Article 5: "Utah's medical marijuana campaign kicks off with a 'tailwind of support" *Salt Lake Tribune*	Explicit:	Implicit:	Related:
Frequency of phrases falling into each category	0	0	4
Total paragraphs in article	15	15	15
% of article which is relevant to category	0%	0%	26.67%

The numerical data for the results have been used to create bar graphs in order to aid the reader in interpreting the data results for each state.

Oklahoma Article Data

Utah Article Data

State Article Category Totals
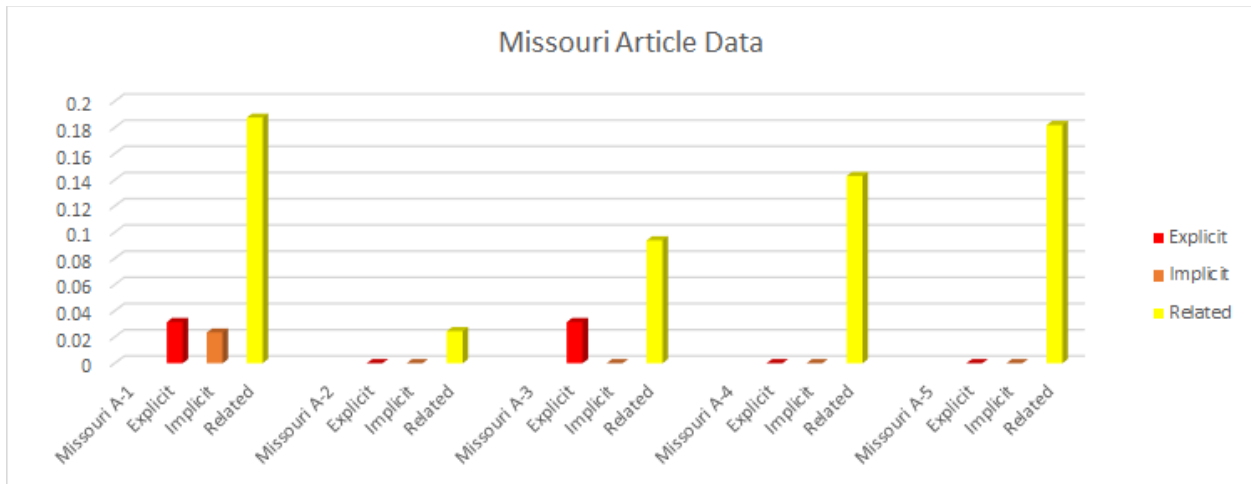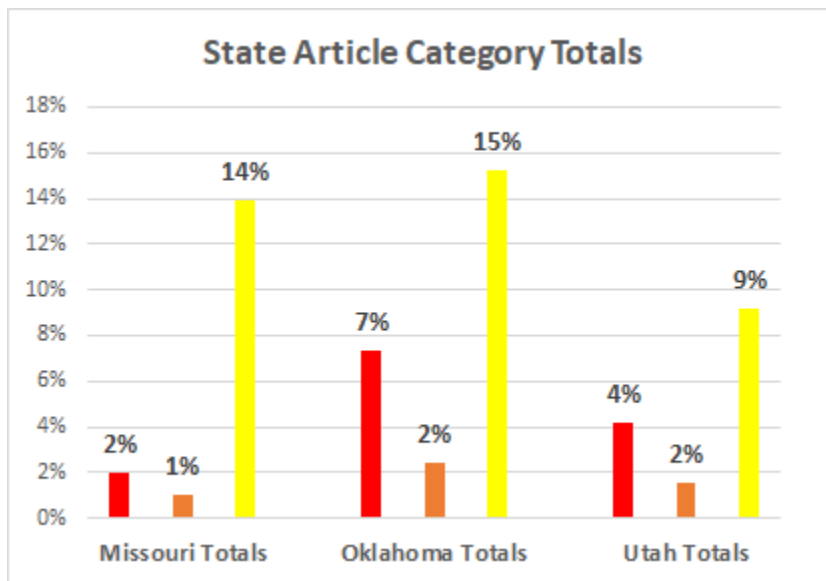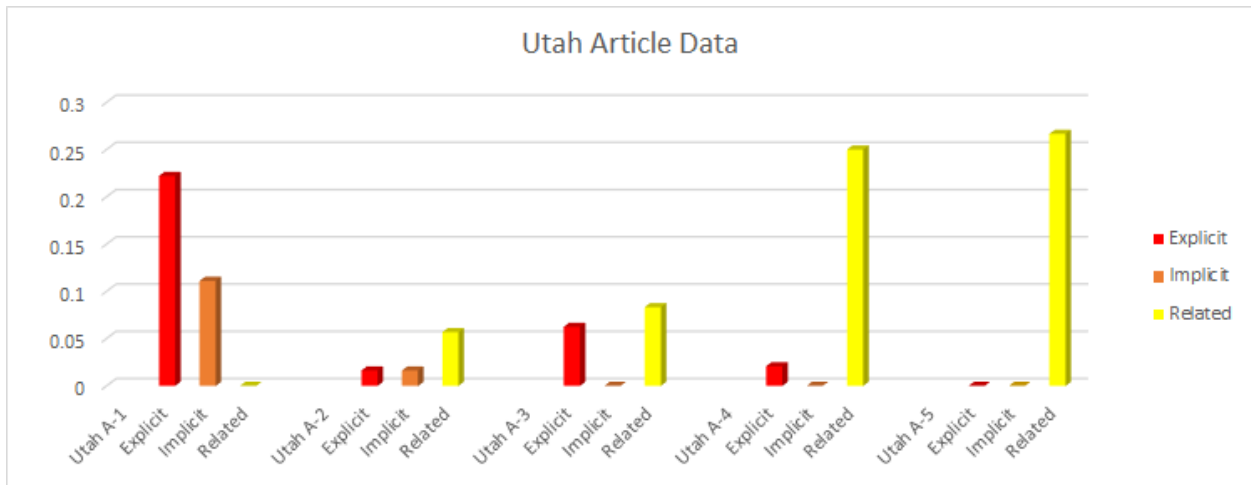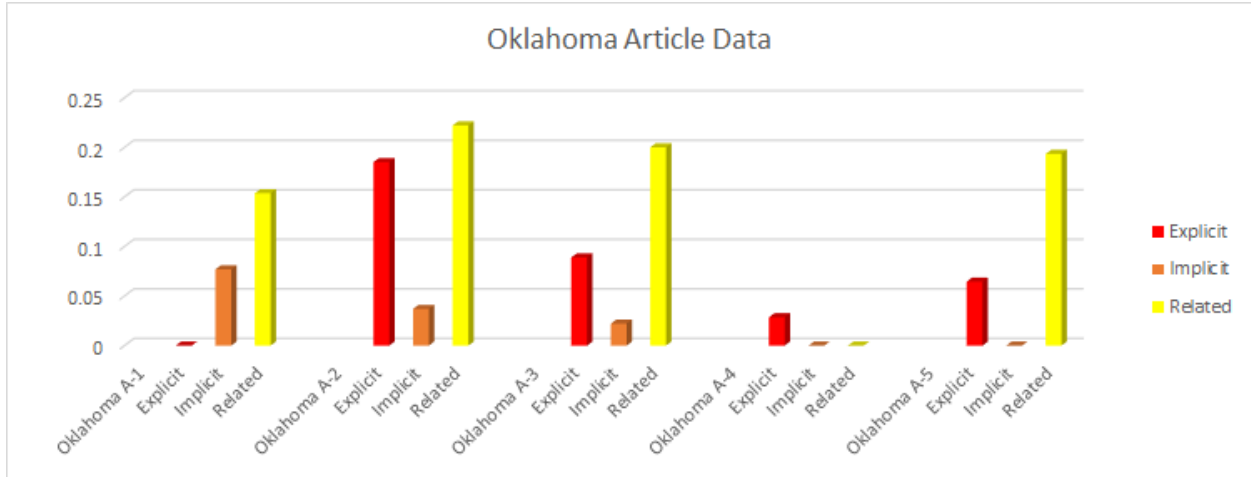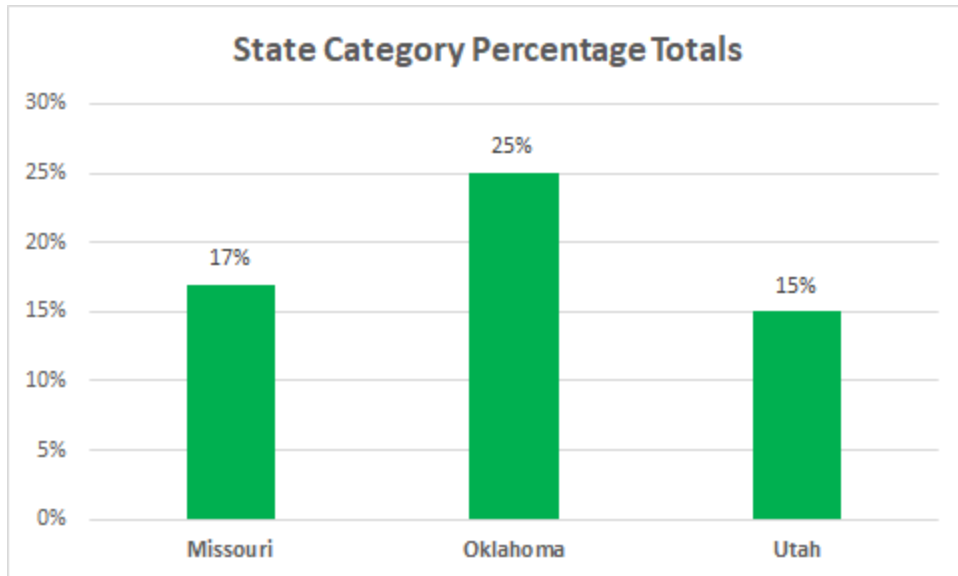
The results from the data compiled from the Missouri, Oklahoma, and Utah articles appeared to show the highest rates of related mention of marijuana for treatment of various illnesses. The bar graphs above reflect the individual percentages of the amount of paragraphs per article which relate to each category in each state.

Of the total 287 paragraphs coded in Missouri from all 5 articles, 2% referred explicitly to the opioid crisis, 1% referred implicitly to chronic pain, and 14% referred to related ailments and conditions which medical marijuana might be an alternative treatment for. In total, 17% of the 287 paragraphs fit into one of the three categories.

Of the total 164 paragraphs coded in Oklahoma from all 5 articles, 7% referred explicitly to the opioid crisis, 2% referred implicitly to chronic pain, and 15% referred to related ailments and conditions which medical marijuana might be an alternative treatment for. In total, 25% of the 164 paragraphs fit into one of the three categories.

Of the total 261 paragraphs coded in Utah from all 5 articles, .4% referred explicitly to the opioid crisis, 2% referred implicitly to chronic pain, and 9% referred to related ailments and

conditions which medical marijuana might be an alternative treatment for. In total, 15% of the 261 paragraphs fit into one of the three categories.

The explicit mention of the opioid crisis seems to still be a topic of interest mentioned often in the majority of the articles, whereas the implicit mention of marijuana as treatment for chronic pain was mentioned much less. It is likely that the related mention of various illness category was most popular in all of the states due to the fact it is easier to convince an audience of a specific point if you can provide multiple examples for why the point is correct. For example, stating that medical marijuana is effective for treating chronic pain is less convincing than stating that medical marijuana is effective for treating PTSD, chronic pain, multiple sclerosis, nausea from chemotherapy and glaucoma.

This being said, perhaps related mention of treatment by marijuana for other illnesses comes from the fact that advocacy groups who were quoted in the news articles as saying these things were convinced mentioning more conditions that could be treated by marijuana would be more effective for turning out 'yes' votes for medical marijuana. Similarly, the same is likely true for the second most popular category, explicit mention of marijuana as an alternative to opioids and reducing deaths caused by the opioid crisis. Convincing people that voting 'yes' on medical marijuana could reduce opioid deaths would be effective for voter turnout.

It is difficult to say that there was a direct connection between the framing of marijuana as an alternative for opioids and the passage of these state laws. It is more likely that these laws passed due to the framing of how marijuana could be a treatment for various illnesses and ailments. However, it is clear that there was mention of the opioid crisis in many of the articles for each state. A larger sample of coded news articles might be able to further determine if the framing of marijuana as an alternative for opioids was largely relevant in why voters passed

medical marijuana into law, but the most effective way to test this would be to do a statewide survey among state voters. This small number of coded articles does show a certain theme, and proves that a survey based study might be warranted.

CONCLUSION:

The author intended to test the hypothesis: "Did the print news article framing of medical marijuana as a possible solution to the opioid crisis influence the passage of medical marijuana laws in Missouri, Oklahoma, and Utah?" The findings were while there was some evidence of media framing marijuana laws as an alternative for the opioid crisis in all three states, the more popular issue to be framed was the ailments and illnesses which can be treated by marijuana. The reason for this is likely due to a desire to frame medical marijuana as a general and multi-purpose treatment for many ailments and illnesses rather than only one. With more examples available for the applications of medical marijuana, the easier it is to argue in favor of the policy.

It is difficult to prove whether or not the way print news framed the medical marijuana laws from Missouri, Oklahoma, and Utah as a potential solution to the opioid crisis had anything to do with the passage of the medical marijuana laws in the three states, but it is possible to draw the conclusion that there might be a strong possibility this was the case. There was certainly a theme of the potential uses of medical marijuana for a various amount of illnesses and ailments. The best way to test whether the way that the print news articles framed medical marijuana had anything to do with the passage of these laws would be to survey the voters in each state and ask questions related to how media sources swayed their vote. The results of this test have certainly made a case that there is reason for future studies to continue to explore this topic.

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