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# Faith-Based College Students' Perception of Medical and Recreational Use of Marijuana and Its Health Effects

AT 1



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#### ABSTRACT

Background: The literature review revealed that the legalization of marijuana and the use of the drug within the college-aged population was a controversial topic. There was an ongoing discussion about the effects of marijuana on the body as well as effects on college students' performance. Purpose: The purpose of this study was to determine the perceptions regarding the medical and recreational use of marijuana and its health effects among students in a faithbased college. Method: This was a quantitative, crosssectional, non-experimental study with a descriptive design. One hundred thirty-five participants completed the demographic and 13-item surveys. The health belief model was used to guide this research study. Results: In alignment with the literature, the participants agreed that marijuana could cause learning disabilities and mental health problems but disagreed with marijuana being extremely dangerous. Overall, the participants were in favor of the medical use of marijuana for adults but not for children. The majority of participants (M=3.45, SD=1.08) agreed that they were neutral regarding the recreational use of marijuana. Conclusion: There was an array of both positive and negative perceptions from students on the college campus. Predominantly, the views of young people have become more accepting of the use of marijuana.

#### **INTRODUCTION**

Recreational drug use has become a common topic of conversation in society. Some individuals believe marijuana has no addictive properties. Researchers at the Center for Disease Control and Prevention stated that about 1 in 10 marijuana users will become addicted. For people who begin using before the age of 18, that number rises to 1 in 6.<sup>1</sup> The purpose of this study was to determine the perceptions regarding the medical and recreational use of marijuana and its health effects in faith-based college students.

#### Background

Marijuana has appeared in the news more often in the last several years, and researchers found that college-aged students are a particularly vulnerable group. Attitudes and beliefs about addictive substances are forged during late adolescence and young adulthood.<sup>2</sup> Regarding the legalization of marijuana, Moreno *et al*<sup>3</sup> argued that perceptions of college students were uncertain. Positive attitudes and intentions towards marijuana foreshadow the use in the first year of college.<sup>3</sup> Marijuana was the most widely used illicit drug on college campuses.<sup>4</sup> Previous studies indicated past-30-day use rates of marijuana between 16% and 64% and lifetime use rates between 40% and 75%.<sup>3</sup>

In the U.S., as of 2016, 29 States and the District of Columbia have legalized marijuana, either for medicinal use, recreational use, or both. The media is full of opinions supporting or opposing the use of marijuana and its effects on the body. Contradictory information about the risks and benefits of marijuana was gathered in this study.<sup>5,6</sup> College students commonly believe that marijuana was not harmful, addictive, or as severe as tobacco.<sup>4</sup>

College students should acquire accurate knowledge about the effects of marijuana on the body so they can make informed decisions about the use of the drug. Previously conducted research<sup>1-6</sup> has shown a gap in the college students' perceptions regarding the effects of marijuana use, which led to the inquiry in the current study. Students attending a faith-based institution may have attitudes and practices that comply with their religious beliefs. Based on this, the students could have perceptions and behaviors based on their religious affiliation. This Christian College also acknowledged the Biblical teaching of human bodies being the temple of the Holy Spirit. With this belief, students are required to refrain from the use and possession of alcohol, nonprescription narcotics, drugs, and tobacco.

#### **Problem Statement**

Ongoing controversy exists around the effects of marijuana on the body. People reported various effects from physical harm to emotional relief and relaxation.<sup>7</sup> The National Institute of Drug Abuse<sup>8</sup> report warned marijuana use amongst teenagers may impair thinking, memory, and learning functions and affect how the brain builds connections. Nationally, the views of young people on marijuana are becoming more permissive.<sup>2</sup> Previously published research has shown a lack of exploration of these views in college students who attend a faith-based college.

#### **Purpose Statement**

The purpose of this study was to determine the perceptions regarding the medical and recreational use of marijuana and its health effects in faith-based college students.

#### **Research Questions**

Two research questions were the focus of this study:

**RQ 1:** What are the perceptions regarding the medical use of marijuana and its health effects among students in a faith-based college?

**RQ 2:** What are the perceptions regarding the recreational use of marijuana and its health effects among students in a faith-based college?

#### **REVIEW OF THE LITERATURE**

Scholarly peer-reviewed journal articles were considered for this literature review. Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsycINFO, Health Source: Nurse/Academic Edition and Medline with FULL TEXT awere used to find peer-reviewed articles. These databases were used to search and access articles using the key terms: *medical marijuana, recreational marijuana, college students, health and social effects of marijuana,* and *legalization*. The peer-reviewed articles selected were published from the years 2014 through 2017.

#### Marijuana Health Effects

Many studies have researched the effects that marijuana has on the body. Studies have shown that there could be benefits to marijuana, but others have shown that there are many negative effects of the use of the drug. Wright and Metts<sup>6</sup> reported, that about 5.7 million people in the United States, ages 12 years and older, use it daily or almost daily, a number that has nearly doubled since 2006.

Quality of life was lower in those who used non-medical marijuana.<sup>6</sup> Chronic effects may include oral health problems, gynecomastia, and changes in sexual function. Elevated rates of myocardial infarction, cardiomyopathy, limb arteritis, and stroke have been observed.<sup>6</sup> Chronic use of marijuana has also been linked to airway infection. Cannabis contains at least 33 carcinogens and may be contaminated with pesticides, but research about its relationship with cancer is incomplete.<sup>6</sup> Some studies have indicated that marijuana can cause certain types of cancer, including rare cancers in children related to parental use. Other negative effects include increased numbers of motor-vehicle accidents. There are more dangers related to marijuana use while driving than driving under the influence of alcohol. Wright and Metts pointed out that marijuana use is an independent risk factor negatively affecting mental health, especially in adolescents.

Some potentially positive effects were found with marijuana use, as well. In an observational study of nearly 11,000 participants ages 20 to 59 years, cannabis users had a lower body mass index, better lipid parameters, and were less likely to have diabetes than non-using counterparts.<sup>6</sup> Marijuana also does not seem to have major negative effects on the lungs and does not aid in the development of chronic obstructive pulmonary disease. There may be positive effects on attention in daily users, but highly focused attention is not always beneficial. It is important to note Wright and Metts stated that no research had shown positive effects of safe marijuana use over time. Marijuana should only be used if medical benefits outweigh the risks if all other treatment options have been tried, and the risks are understood.

Metts *et al*<sup>5</sup> explored the pros and cons of using marijuana for medicinal purposes so that health care providers could give their patients an informed opinion about the subject. Medical marijuana is primarily used to treat pain symptoms but can also be used for other conditions. There are more than 60 pharmacologically active cannabinoids in marijuana, but the main two are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). THC causes euphoria,

but can also cause psychosis, while CBD can have antianxiety, and maybe even antipsychotic, effects.<sup>5</sup> With these findings, the fact remains that marijuana is a Schedule 1 drug and should only be recommended to patients after other medications and non-pharmacological methods are tried and do not work.

#### Marijuana's Effects on College Students' Performance

Two studies detailed on the negative effect's marijuana has on college students' performance. Arria *et al*<sup>9</sup> reported, Marijuana use is common among college students in the United States, with one in three using within the past year and 19.8% reporting past-month use. They found that students who use marijuana often skip more classes, which led to a lower Grade Point Average (GPA), and it takes them longer to graduate.<sup>9</sup> Arria *et al.* reported early marijuana use could lead to decreased academic performance. Marijuana use inhibits successful academic outcomes by affecting learning and functioning ability. Long-term use has also been linked to changes in the brain structure that affects IQ, attention, neurocognitive performance and development of mental health problems, such as depression and anxiety.<sup>9</sup>

Blavos *et al*<sup>4</sup> found evidence that students who use marijuana regularly were less likely to be motivated academically because *substances hijack the brain pathways*. Blavos *et al* noted that consistent marijuana use could lead to decreased study time and time in class, which often resulted in a lower GPA. Discontinued enrollment was also linked to college-aged marijuana use. They found that marijuana affected concentration. Blavos *et al* noted that 40% of marijuana users reported problems concentrating and 14% reported missing class.<sup>4</sup> The research confirms repetitive negative effects on college-age students' performance levels.

#### **Perceptions of College Students**

Several research studies have been conducted regarding the perception of college students on marijuana use and legalization. Schmidt *et al*<sup>2</sup> reviewed college students' perception of marijuana in states that had legalization compared to states that did not have legalization. There is a national trend toward young people taking more permissive views about marijuana independent of any effects within the states.<sup>2</sup> High school age students and young adults were more likely to agree with marijuana legalization than those of middle school age students. In recent years, it has become more likely for young adults to believe the weekly and monthly use of marijuana is not a great risk. Young adults were more willing to use if it was easy to

obtain and their peers approved of it. These more permissive national attitudes accelerated in 2009 with successful movements of marijuana legalization.<sup>2</sup>

Moreno *et al*<sup>3</sup> studied two similar colleges, one in Washington and one in Wisconsin, in which they interviewed 283 full-time students by phone. The purpose of this study was to understand college students' (1) views and experiences regarding marijuana; (2) voting behaviors and intentions; and (3) early perceptions of the impact of legislation on marijuana intentions or behaviors following the Washington state election in November 2012.<sup>3</sup> The results indicated similar views in both states and a small number of students believed that legalization of marijuana portrayed it as a harmless drug.<sup>3</sup>

#### Legalizations Effects Nationwide

As of the year 2016, in the U.S., laws legalizing medical marijuana are present in 29 states and the District of Columbia. Four of these states, along with the District of Columbia, have laws legalizing recreational marijuana use. Davis *et al*<sup>10</sup> researched the public health effects of medical marijuana legalization in Colorado. They found that since legalization, there was an increase in marijuana-related hospital visits and poison center calls. Davis *et al* reported, Marijuana calls ranked fourth behind alcohol, cocaine, and methamphetamines prior to 2009, but after 2009 they ranked second to alcohol.<sup>10</sup>

Aydelotte *et al* explored crash fatality rates in Washington and Colorado after the legalization of recreational marijuana use.<sup>11</sup> They found three years after recreational marijuana legalization, changes in motor vehicle crash fatality rates for Washington and Colorado were not statistically different from those in similar states without recreational marijuana legalization.<sup>11</sup> They reported the rates were slightly higher in states with legalization but were not statistically significant. Further research over a longer period was recommended.

#### Summary of the Literature Review

After researching its health effects, there is clear that long-term use of marijuana for medical or recreational practices may not be beneficial to the user's health. Based on the literature review, medical use can have a few positive effects, but it should be prescribed as a last resort once other treatments have been ruled ineffective. When exploring specifically at college students, previous research showed that their views were more permissive in regards to use and legalization of marijuana. Past researchers have reported clear, negative effects marijuana

use has on academic success, but many students may be unaware of these negative consequences.

Based on the reviewed studies, although marijuana has some benefits in certain medical conditions, the risks and negative health effects in the general population may outweigh its positive effects. It has been found to be detrimental to the academic success of college students who used recreational marijuana frequently. The effects of legalization need more research, but thus far research has shown the use of recreational marijuana had negative effects on safety where it was legalized. Despite all of this, the views of young people nationwide have become more accepting of the use of marijuana, and more state legalization looks promising in the future. The need for this study was warranted because there is a lack of research on students from a faith-based institution, which identifies a gap in data.

#### THEORETICAL FRAMEWORK

The Health Belief Model (HBM) was applied to this study to examine perceptions of collegeaged students concerning marijuana use. The HBM was created in the 1950s. Rosenstock<sup>12</sup> and associates used this model in an attempt to predict the behaviors of people based on their perceptions of health. The HBM has four constructs that relay a person's perceived threat and benefits of health action. These four constructs are perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. The constructs reflect a person's readiness to act.<sup>12</sup>

The purpose of this research was to analyze the perceptions of college-aged students on the use of marijuana. Peoples' perceptions of different actions form the basis of their decisions. A lack of education on this subject may create an inaccurate perception of susceptibility and the effects on the body. If students believe the benefits of using marijuana are positive, they have a higher probability of using the substance.

#### **DEFINITION OF TERMS**

#### **Conceptual Definitions**

The HBM contains constructs such as perceived seriousness, perceived susceptibility, perceived benefits, perceived barriers, and cues to action. Rosenstock<sup>12</sup> reiterated, *perceived seriousness* is the opinion one has on how serious a particular health problem is and the

consequences of acquiring it. *Perceived susceptibility* is the opinion one has on the chances of acquiring a particular health problem. *Perceived benefits* are the beliefs one has on the effectiveness of the advised action to reduce the risk or seriousness of the health problem. *Perceived barriers or perceived threat* was referred to as the opinion one has on the costs the advised action will have on the physical and psychological self. *Cues to action* are strategies to activate *readiness*.

#### **Operational Definitions**

In this research study, *faith-based college students* were defined as students ages 18 years and older who attended this Christian institution. *Marijuana* was defined as cannabis, specifically when smoked or consumed as a mind-altering drug. *Medical marijuana* was defined as the use of marijuana for medicinal treatment of a condition or side effects of a condition. *Recreational marijuana* was defined as marijuana used for reasons other than treatment of a medical condition. *Health effects* were defined as the changes that occur in the body as a result of smoking or ingesting marijuana.

#### METHOD

A quantitative, non-experimental descriptive study was conducted with cross-sectional sampling. This method allowed sampling and analyzing a variety of individuals. Participants were surveyed once during this study on a random and voluntary basis.

#### Sample

The sample for this study was from male and female college students who were 18 years or older. The participants were given instructions, informed of potential risks and implications of participating, and ensured confidentiality throughout the process. This was a convenience sampling of 135 volunteer students obtained from the college cafeteria. The majority of the students were Caucasian. The intention was to obtain surveys from freshman through senior students, to collect a variety of opinions. The faculty and staff were excluded. Survey results remained anonymous and incomplete surveys were discarded. Permission to use the premises was obtained. The time of day was during meal hours to encourage participation.

#### **Survey Instrument**

After a thorough review of the literature, the marijuana survey instrument was created. Four items obtained demographic information of the participant. The rest of the survey contained 13 statements about the student's perceptions of medical and recreational marijuana. Five statements were about medical marijuana (Items 1-5) while eight were on recreational marijuana, (Items 6-13). These statements were scored using a Likert-type agreement scale. The statements on the agreement scale ranged from strongly agree (5) to strongly disagree (1). All completed surveys and informed consents were placed in different envelopes to ensure anonymity. All collected data for this research was submitted to the College School of Nursing (SON) to be stored electronically for three years. The SON staff scanned the data into the computer and stored it on discs in a locked cabinet in a locked storage room. None other than the nursing administrators or the research coordinators have access to the stored records.

#### **Reliability and Validity**

After receiving permission from the authors to revise and use their Medical Marijuana Survey Questions, a new survey was created. The survey instrument was based on a Hospital National Poll on Children's Health.<sup>13</sup> The final survey was peer-reviewed by two professors and two peers to establish face validity.

#### Informed Consent and Confidentiality

Before beginning this study, the researchers each completed the "Protecting Human Research Participants" certificate from the National Institute of Health (NIH) Office of Extramural Research. Approval from the College Institutional Review Board (IRB) was gained before the survey administration. Participation in this study was voluntary, and participants had the right to withdraw at any time. Informed consent was given to all participants describing the purpose of the research. It was signed and returned to the researchers before taking the survey. The participants were also given a copy of the informed consent, which included the researchers' contact information if the participants had any questions.

#### RESULTS

The literature review was the foundation for examining the results of this study. The HBM was applied to this study by examining perceptions of college-aged students about marijuana. There was an array of both positive and negative perceptions from the population of students on the college campus.

Data collection took place outside the cafeteria in March 2018. The sample only represented the students who used the cafeteria during their dinner period. Store bought candy was offered as an added incentive to complete the survey. Paper surveys and consent forms were distributed to students who chose to participate and complete the survey. Before signing the informed consent, the participants were informed of the purpose of the study and that their answers would be kept confidential. To provide privacy, each student was instructed not to write their name on the survey. The consent forms and surveys were then collected and placed into different folders.

Upon data collection, the results were tallied and organized in an Excel spreadsheet. Surveys were examined for completeness. Seven surveys were discarded because of incompleteness or illegibility. Altogether, 135 surveys were completed and used for this study. The demographic data was calculated using frequency and percentage. Mean, standard deviation, and mode were calculated for survey statements. A higher mean value represented strong agreement with a survey statement and a larger standard deviation reflected a greater variation in the participant's answers.

#### **Demographics**

Male6749.6Female6850.4Age Range:503718-19503720-216447.422-232115.6Ethnicity:Caucasian11081.5African-American1511.1Hispanic75.2Mixed0.70.7Other21.5	Variable		f	%
Female 68 50.4   Age Range: 50 37   18-19 50 37   20-21 64 47.4   22-23 21 15.6   Ethnicity: 110 81.5   Caucasian 110 81.5   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 0.7   Freshman 41 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Gender:			
Age Range: 50 37   18-19 50 37   20-21 64 47.4   22-23 21 15.6   Ethnicity:   Caucasian 110 81.5   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Male		67	49.6
18-19 50 37   20-21 64 47.4   22-23 21 15.6   Ethnicity: 110 81.5   Caucasian 15 11.1   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Female		68	50.4
20-21 64 47.4   22-23 21 15.6   Ethnicity: 110 81.5   Caucasian 15 11.1   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Freshman 41 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Age Range:			
22-23 21 15.6   Ethnicity: 110 81.5   Caucasian 110 81.5   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: Year in School: Year in School:   Freshman 41 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	18-19		50	37
Ethnicity: 110 81.5   Caucasian 110 81.5   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	20-21		64	47.4
Caucasian 110 81.5   African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	22-23		21	15.6
African-American 15 11.1   Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: Y Y   Freshman 41 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Ethnicity:			
Hispanic 7 5.2   Mixed 1 0.7   Other 2 1.5   Year in School: 1 30.4   Freshman 41 30.4   Sophomore 34 25.2   Junior 33 24.4   Senior 26 19.3	Caucasian		110	81.5
Mixed10.7Other21.5Year in School:4130.4Freshman4130.4Sophomore3425.2Junior3324.4Senior2619.3	African-American		15	11.1
Other21.5Year in School:21.5FreshmanHUMAN4130.4Sophomore3425.2Junior3324.4Senior2619.3	Hispanic		7	5.2
Year in School:FreshmanHUMAN4130.4Sophomore3425.2Junior3324.4Senior2619.3	Mixed		1	0.7
FreshmanHUMAN4130.4Sophomore3425.2Junior3324.4Senior2619.3	Other	×	2	1.5
Sophomore   34   25.2     Junior   33   24.4     Senior   26   19.3	Year in School:			
Junior 33 24.4   Senior 26 19.3	Freshman	HUMAN	41	30.4
Senior 26 19.3	Sophomore		34	25.2
	Junior		33	24.4
5th year 1 0.7	Senior		26	19.3
	5th year		1	0.7

Table 1. Descriptive Statistics for Participant Demographics and Background

*Note.* (*N*=135).

Table 1 contains the demographic statistics. Sixty-seven females (49.6%) and 68 males (50.4%) completed surveys. The most common age range was 20-21, with 64 (47.4%) students participating in that range. Eighteen- to nineteen-year-olds were close with 50 (37%) participating, followed by 22-23-year-old with 21 (15.6%). The highest ethnicity of participants was Caucasian (81.5%). Freshmen (30.4%), sophomores (25.4%), and juniors (24.4%) made up the majority of the population.

#### **Item Set Description**

#### Table 2. Student Perceptions on Medical Marijuana

Variable	Mean	SD	MODE
The United States should allow medical marijuana for adults.	3.37	1.14	4
The United States should allow edible forms of marijuana to	3.13	1.10	3
be sold for medical purposes.	0110		C
Parents' use of medical marijuana encourages children to try	3.10	1.19	4
marijuana.			
Adults should be allowed to use medical marijuana in the	2.38	1.10	2
presence of children.			
The United States should allow medical marijuana for	2.29	1.18	2
children under the age of 18.	>	1.10	-

*Note.* (N=135). Items were rated on a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*), so higher means indicate higher levels of agreement. Mode indicates the most common answer.

#### **Research Question One**

## HUMAN

The first research question was, "What are the perceptions regarding the medical use of marijuana and its health effects among students in a faith-based college?" Survey statements one through five addressed this question. Students rated their response to each statement based on a five-point Likert-type scale, (1) meaning strongly disagree, (2) meaning disagree, (3) meaning neutral, (4) meaning agree, and (5) meaning strongly agree. In Table 2, the means (M) are listed from highest to lowest with their corresponding standard deviation (SD) and mode (MODE).

When examining the mean, students were mostly neutral on the topic of allowing medical marijuana for adults in the United States (M=3.37, SD=1.14). However, the most common answer was in agreement (MODE=4). When looking at the mean, they were also fairly neutral when it came to the United States allowing edible forms of marijuana to be sold for medical purposes (M=3.13, SD=1.10) and parents' use encouraging their children to try marijuana (M=3.10, SD=1.19). Though, in the case of parental use encouraging their children to try marijuana, the most common answer was in agreement (MODE=4). However, students

disagreed when it came to adults being allowed to use medical marijuana in the presence of children (M=2.38, SD=1.10) and the United States allowing medical marijuana for children under the age of 18 years (M=2.29, SD=1.18).

#### **Research Question Two**

The second research question was, "What are the perceptions regarding the recreational use of marijuana and its health effects among students in a faith-based college?" Survey statements one through five were related to medical marijuana perceptions. Statements six through thirteen were related to recreational marijuana. The participants rated their response to each statement on a five-point Likert-type scale. In Table 3, the means (*M*) are listed from highest to lowest with their corresponding Standard Deviation (*SD*) and mode (*MODE*).

In Table 3, the means are organized from highest to lowest. Each of the students' means ranged from 3.45 to 2.31. The majority of participants (M=3.45, SD=1.08) agreed that they were neutral to believing or knowing that recreational marijuana had adverse effects on learning and mental capabilities. Also, at the top of the list, students were neutral about believing marijuana was as bad as smoking a cigarette (M=2.96, SD=1.24) and perceiving it could cause fatal overdose (M=2.92, SD=1.25). Additionally, a portion of the participants disagreed that marijuana use was extremely dangerous (M=2.90, SD=1.26). Students views on marijuana as causation of cancer (M=2.78, SD=1.02) and an equivalent to alcohol consumption (M=2.76, SD=1.25) were very similar in disagreement of each. Allowing marijuana to be sold for recreational purposes in the United States (M=2.43, SD=1.19) and marijuana having no negative health effects (M=2.31, SD=1.07) rounded out the bottom of the survey with students' perceptions disagreeing on both statements.

The mode (*MODE*) depicted in Table 3 indicates the most common perceptions of students. While some means and modes were similar, there were some that reflect a wider range of data. For example, on average, students shared that they were neutral about believing recreational marijuana had adverse effects on learning and mental capabilities, while the most common answer stated that most students agreed that it caused harmful effects (*MODE=4*). This was also seen in the statement about recreational marijuana use being as bad as cigarette smoking. The mean indicates that students were neutral, while the mode showed that the most common answer was in disagreement (*MODE=2*). While the mean indicated students were neutral on recreational marijuana being dangerous and causing fatal overdoses, the modes

were both in disagreement (MODE=2). Students also disagreed (MODE=2) that recreational marijuana use was equivalent to alcohol. Perceptions of recreational marijuana from students also disagreed (MODE=4) with edible forms being sold and marijuana having no negative health effects.

Variable	Mean	SD	MODE
Recreational marijuana use has an adverse effect on	3.45	1.08	4
learning and mental capabilities.			
Recreational marijuana use is as bad as smoking a cigarette.	2.96	1.24	2
Recreational marijuana use could cause a fatal overdose.	2.92	1.25	2
Recreational marijuana use is extremely dangerous.	2.90	1.26	2
Recreational marijuana use causes cancer.	2.78	1.02	3
Recreational marijuana use is equivalent to alcohol	2.76	1.25	2
consumption.			
The United States should allow edible forms of marijuana	2.43	1.19	2
to be sold for recreational purposes.			
Recreational marijuana use has no negative health effects.	2.31	1.07	2

*Note.* (N=135). Items were rated on a 5-point Likert type scale ranging from 1(*Strongly Disagree*) to 5 (*Strongly Agree*), so higher means indicate higher levels of agreement. Mode indicates the most common answer.

The results indicated the perceptions of students relating to the use of both recreation and medical marijuana. First, students perceived medical marijuana to be safer than recreational marijuana use. The majority believed to use marijuana is less harmful to adults than children. Students agreed that there are harmful effects to the body because of the use of recreational marijuana. Next, students perceived smoking cigarettes to be more harmful than marijuana use. Lastly, the study showed that there was much speculation about marijuana and students lacked knowledge of the actual effect's marijuana has on the body.

#### DISCUSSION

The review of the literature revealed that young people nationwide had become more accepting of the use of marijuana. There is a national trend toward young people taking more

permissive views about marijuana independent of any effects within the states.<sup>2</sup> The literature reviews indicated that the negative health effects of marijuana in the general population might outweigh the positive health benefits. Long-term use has also been linked to multiple changes in the brain and the development of mental health problems.<sup>9</sup>

#### **RQ 1: Medical use of Marijuana**

The participants agreed that they were more accepting of marijuana use. The responses ranged from neutral to agreeing that medical marijuana should be allowed in the United States. There was a common theme of agreement that edible forms of medical marijuana should be sold in stores. Finally, there was also a common agreement that marijuana should not be smoked around children or allowed usage in children under 18 years. Overall, the participants were in favor of medical use and benefits of marijuana for adults but not for children (see Figure 1).

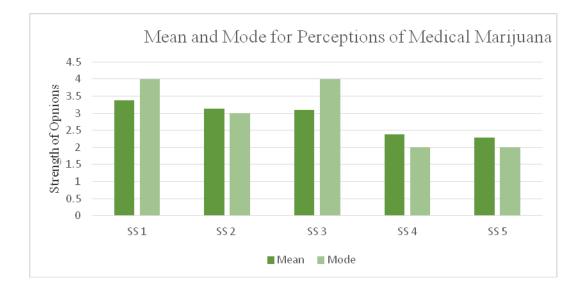


Figure 1. N=135. The mean and mode comparison of perception regarding the use of medical marijuana

Tables 4 contains five survey statements (SS) corresponding to question order on the medical marijuana survey.

Table 4. Student F	Perceptions	of Medical	Marijuana
Table 4. Student I	erceptions	oj meticai	manyuunu

Medical Marijuana (Perception)	Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)
	1	2	3	4	5
1. The United States should allow medical marijuana for adults.	SD	D	N	А	SA
2. The United States should allow medical marijuana for children under the age of 18.	SD	D	N	А	SA
3. Adults should be allowed to use medical marijuana in the presence of children.	SD	D	N	А	SA
4. Parents' use of medical marijuana encourages children to try marijuana.	SD	D	N	А	SA
5. The United States should allow edible forms of marijuana to be sold for medical purposes.	SD	D	N	А	SA

#### **RQ2: Recreational use of Marijuana**

The findings of this study ran congruent with previously published research concerning perceptions of recreational marijuana. The participants agreed that there was a lack of knowledge of the effects of marijuana on the body. However, they recognized that there were negatives consequences to the use of recreational marijuana but they were unaware of the harmfulness of this drug. In alignment with the literature, participants agreed that marijuana could cause learning disabilities and mental health problems but disagreed with the danger involved with marijuana use. The literature revealed that young adults were more willing to use if it was easy to obtain and their peers approved of it.<sup>2</sup> This was a consistent theme found in the current data as well. Overall, the perceptions on the use of recreational marijuana were more open and accepted its use (see Figure 2).

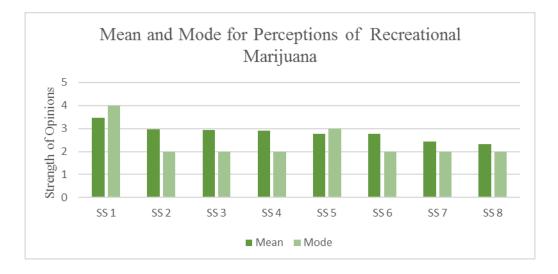


Figure 2. The mean and mode comparison of perception regarding the recreational use of marijuana. N=135

Tables 5 contains eight survey statements corresponding to question order on the recreational use of marijuana survey.

Table 5. Student Perceptions of Recreational Marijuana	Į
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Recreational Marijuana (Perception)	Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)
	1	2	3	4	5
1. Recreational marijuana use has an adverse effect on learning and mental capabilities.	SD	D	Ν	А	SA
2. Recreational marijuana use has no negative health effects.	SD	D	N	А	SA
3. Recreational marijuana use is as bad as smoking a cigarette.	SD	D	N	А	SA
4. Recreational marijuana use is extremely dangerous.	SD	D	Ν	Α	SA
5. Recreational marijuana use causes cancer.	SD	D	Ν	А	SA
6. The United States should allow edible forms of marijuana to be sold for recreational purposes.	SD	D	N	А	SA
7. Recreational marijuana use could cause a fatal overdose.	SD	D	N	А	SA
8. Recreational marijuana use is equivalent to alcohol consumption.	SD	D	N	А	SA

#### Limitations

Limitations of this research study were identified throughout the process of this study- First, conducting the study on a private Christian college campus may have caused the study to be limited. The sample size of this study was small which may be a limitation A small sample size decreases the generalizability. Another weakness of the study was the homogenous population. Majority of the students at this college were Caucasian. Traditional students are the individuals who have meal plans and typically eat at the cafeteria. Another limitation was that the survey was conducted on only one campus. Information was only gathered from students, not the general public or older adults.

#### Recommendations

Surveying students in different environments or different college campuses would be beneficial in determining alternate perceptions. Further exploration of this topic could identify that students at faith-based colleges have also become more permissive in their views of marijuana. Research at faith-based colleges in regions where marijuana is legalized could also have different results than the ones found in this study, which took place in Indiana, where marijuana is not legalized. Further research is required to gain a better understanding of college-aged students' views and how to better educate about the effects of marijuana.

#### CONCLUSION

Marijuana and its legalization have been popular topics. Assessing and comparing college students' perceptions of marijuana provided data on what college students' views were about this subject. Overall, the participants were in favor of the medical use of marijuana for adults but not for children. The majority of participants (M=3.45, SD=1.08) agreed that they were neutral regarding the recreational use of marijuana.

#### REFERENCES

1. CDC. Center for Disease Control and Prevention. (2017). *Marijuana and Public Health*. Retrieved from https://www.cdc.gov/marijuana/health-effects.htm

2. Schmidt, L. A., Jacobs, L. M., & Spetz, J. (2016). Young people's more permissive views about marijuana: Local impact of state laws or national trend? *American Journal of Public Health*, *106*(8), 1498-1503. doi:10.2105/AJPH.2016.303153

3. Moreno, M. A., Whitehill, J. M., Quach, V., Midamba, N., & Manskopf, I. (2016). Marijuana experiences, voting behaviors, and early perspectives regarding marijuana legalization among college students from 2 states. *Journal of American College Health*, 64(1), 9-18. doi:10.1080/07448481.2015.1062769

4. Blavos, A., Glassman, T., Sheu, J., Thompson, A., Denardo, F., & Diehr, A. (2017). Marijuana and college students: A critical review of the literature. *American Journal of Health Education*, 48(3), 167-184. doi:10.1080/19325037.2017.1292878

5. Metts, J., Wright, S., Sundaram, J., & Hashemi, N. (2016). Medical marijuana: A treatment worth trying? *Journal of Family Practice*, 65(3), 178-185. Retrieved from http://www.mdedge.com/jfponline/article/106836/pain/medical-marijuana-treatment-worth-trying

6. Wright, S., & Metts, J. (2016). Recreational cannabinoid use: The hazards behind the "high." *The Journal of Family Practice*, 65(11), 770-779. Retrieved from http://www.mdedge.com/jfponline/article/116578/addiction-medicine/recreational-cannabinoid-use-hazards-behind-high

7. Pietrangelo, A. & Cherney, K. (2017). The effects of marijuana on your body. *Healthline*. Retrieved from https://www.healthline.com/health/addiction/marijuana/effects-on-body

8. National Institute of Drug Abuse. (2017). *Marijuana*. Retrieved from https://www.drugabuse.gov/publications/drugfacts/marijuana

9. Arria, A. M., Caldeira, K. M., Bugbee, B. A., Vincent, K. B., & O'Grady, K. E. (2015). The academic consequences of marijuana use during college. *Psychology of Addictive Behaviors*, 29(3), 564-575. doi:10.1037/adb0000108

10. Davis, J. M., Mendelson, B., Berkes, J. J., Suleta, K., Corsi, K. F., & Booth, R. E. (2016). Public health effects of medical marijuana legalization in Colorado. *American Journal of Preventive Medicine*, *50*(3), 373-379. doi:10.1016/j.amepre.2015.06.034

11. Aydelotte, J. D., Brown, L. H., Luftman, K. M., Mardock, A. L., Teixeira, P. R., Coopwood, B., & Brown, C. R. (2017). Crash fatality rates after recreational marijuana legalization in Washington and Colorado. *American Journal of Public Health*, *107*(8), 1329-1331. doi:10.2105/AJPH.2017.303848

12. Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328-335. doi:10.1177/109019817400200403

13. Davis, M. M., Kauffman, A. D., Singer, D. C., Matos-Moreno, A., & Clark, S. J. (2015). Support for medical marijuana use lower for kids than for adults: National poll on children's health. *C.S. Mott Children's Hospital*, 23(3). Retrieved from https://mottpoll.org/sites/default/files/documents/042015\_medicalmarijuana.pdf

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