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MEDICAL MARIJUANA: HOW COMMUNICATION CHANNELS RELATE TO INDIVIDUALS' PERCEPTIONS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

Kimberly J. Flanders

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August 2018

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Medical marijuana is utilized to treat a variety of serious medical conditions. It is now legalized in 23 states, including Pennsylvania. Little research has been conducted on the relationship between communication channels and individuals' perceptions on the legalization of medical marijuana or its effectiveness as a treatment option. Through a quantitative research study distributed through Qualtrics, 595 respondents from a mid-size university in Pennsylvania provided feedback for analysis. Utilizing Uses and Gratifications Theory as the framework for this research, results led the researcher to ascertain that communication channel utilization relates to opinions of medical marijuana as a treatment option. The research also displays a strong correlation between opinions of marijuana as a treatment option and individuals' opinions on the legalization of medical marijuana. A limitation of this survey was the number of communication channels selected to investigate. This allows the opportunity for further research in this area on additional communication channels, including various web sites. Further research is necessary to understand how various communication channels relate to individuals' perceptions of medical marijuana.

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Thank-you to everyone in my life who made this dream a reality, you know who you are.

TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Table Page

Table Page

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

PROBLEM STATEMENT

Introduction

This study explored how various channels of communication relate to individuals' perceptions of the legalization of medical marijuana. To accomplish the primary objectives of this research, a survey was conducted with faculty, management, staff, and students of a mid-sized university in western Pennsylvania to ascertain which channels of communication are influential regarding the perceptions of medical marijuana. This study will also assist in determining the perceived reliability of the information received through the various communication channels.

With the continuous evolution of communication channels, consumers have an abundance of selections in choosing which media channels they utilize to consume information. Previous research indicates the use of communication channels varies based upon an individual's healthcare needs as well as the individual's cultural background (Maibach& Parrott, 1995; Rimal, Flora, & Schooler, 1999). From the various means of obtaining this information, the perceived credibility of the information received also varies. According to Hesse (2005), individuals seeking healthcare information have the most trust in the information obtained directly from a physician, and the least amount of trust from information heard on the radio. Additional information from that survey indicates divided levels of trust in healthcare information found on the Internet, with almost one quarter of respondents expressing significant trust in the Internet healthcare information, and an additional quarter of respondents displaying no trust at all in the same information.

From traditional forms of communication including television and radio to emerging technologies including Internet sites such as Facebook, Instagram, and Twitter, information is everywhere. Consumers are now able to research medical conditions and find information about diagnosis and treatment options through numerous sources. Furthermore, in recent years, medical marijuana has been emerging in the United States as a viable medication utilized to treat numerous medical conditions. With the request for consumption of medical marijuana as a treatment option, along with the recommendation for its use by medical professionals it is imperative to better understand which channels of communication different consumer demographics rely upon and to what extent these communication channels relate to perceptions.

Statement of the Problem

Medical marijuana is currently utilized in 23 states to treat conditions of patients meeting certain medical criteria. On March 16, 2016, the Commonwealth of Pennsylvania passed Senate Bill 3, and on April 17, 2016, Pennsylvania governor Tom Wolf signed the bill into law, making the Commonwealth the 24th state to legalize the use of marijuana as a medical treatment option (PA Senate Bill No. 3, PA General Assembly, 2016). Credibility of healthcare information in general transmitted via communication channels is vital, and with the new legalization of medical marijuana in Pennsylvania, understanding these channels, their credibility, and users' perceptions of their credibility will be crucial. Understanding these communication channels will enable proper dissemination of information on healthcare treatment options such as the utilization of medical marijuana; thus influencing consumers' perceptions of the medication.

Advancements in technology have enabled individuals to become better educated on medical treatments, thus enabling them to make educated decisions about medical conditions, treatments available, and long-term medical plans. In an article by Escoffrey, et al. (2005), when

asked about the importance for rating health web sites, over 78.5% of respondents in a quantitative survey about health web sites felt that credibility of the author was very important. Of the 743 college student respondents in the survey, all reported using the Internet with 85% of respondents utilizing the Internet for an average of 2.49 hours per day. The possibility for inaccuracies with healthcare information communicated through on-line channels exists simply because of the large volume of materials available (Adams, 2010). Further research by Moorehead (2013) investigates a series of research articles about credibility of healthcare information and concludes that the biggest concern throughout this research is the quality of the information received through on-line social media channels.

According to data provided by the Marijuana Policy Project, of the 23 states where patients can access medical marijuana, approximately 1,444,000 patients are legally consuming cannabis to treat their medical conditions (Marijuana Policy Project, 2016). Of the 26 states reviewed, the population in these states totals, 167,431,414, with Pennsylvania, Ohio, and Maryland, although legalized, are not open for medical patients to begin consumption of medical marijuana at the time of this study. With the continuous growth in popularity as a treatment option, information about medical marijuana needs to be properly communicated and understood by consumers.

The state of Minnesota legalized medical cannabis on July 1, 2015, and the Minnesota Department of Health provided an update on the program in October 2016. Since legalization, the state has 2807 registered users of all ages, from young children to the elderly (Medical Cannabis Program Update, 2016). The study conducted by the Minnesota Department of Health analyzed the demographics and primary uses for medical cannabis. This study reveals that seizure disorders are the most commonly treated illness in children ages 17 and younger, with

102 of the 142 registered children utilizing medical cannabis to lessen and eliminate seizures. Other popular conditions treated in both children and adults in Minnesota show 18% of patients suffering from cancer, 31% of patients treating muscle spasms; and 43% using the drug to treat intractable pain. Additional patients are utilizing the drug for glaucoma, Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS), Tourette Syndrome, Amyotrophic Lateral Sclerosis (ALS), and Crohn's Disease. Comparing the state population of Minnesota at 5,489,594, and Pennsylvania's estimated population at 12,802,000 (www.census.gov, 2016), there is potential for Pennsylvanian citizens to utilize this drug as a treatment. However, understanding the truth about the risks as well as the benefits is critical, making it necessary to identify the communication channels utilized for dissemination of this information.

The Pennsylvania Department of Health announced in December 2016 that applications for both growers of the plant as well as dispensers became available mid-January 2017, and were due for submission by March 20, 2017 (Marijuana Policy Project, 2018). Marijuana Policy Project (2018) also reports that as of April 2018 nine dispensaries were open for business, and two growers began growing medical marijuana. As Pennsylvania continues to expand the actual production and distribution of marijuana for medicinal purposes, this study will prove beneficial for scholars, government, and residents, in understanding the perceptions of messages through the media.

Need for the Study

There is a lack of scholarly research that embraces the topic of how various communication channels relate to perceptions of medical marijuana among the population. To further understand this topic, additional research needs to be conducted. By utilizing the

demographics of a western Pennsylvania mid-sized university population, the research explored perceptions of various media channels as well as perceptions based on demographic profiles. Since medical marijuana can be used to treat such a large number of medical conditions, this community provided a sense of attitudes about perceptions and provided some clues about the perceptions of the larger population.

According to medicalmarijuanaprocon.org (2016), there were approximately 1.2 million legal medical marijuana patients across the country. With the recent legalization of cannabis in Pennsylvania, combined with an estimated population of 12.8 million residents (census.gov, 2016), the proper and effective communication of the benefits and risks of medical marijuana is essential. The intention of this research was to evaluate individuals' perceptions of utilizing medical marijuana as a treatment option as it is portrayed through various media platforms. Further research investigated how various communication channels related to users' perceptions in regards to the reliability of medical marijuana information received.

Purpose of the Study

Through this quantitative research study, the researcher's intention was to investigate individuals' perceptions of medical marijuana as portrayed through various communication channels and to gain a better understanding of how exposure to these communication channels relate to those perceptions. Serving as the theoretical basis for this research was Uses and Gratification Theory (Katz, Blumler, & Gurevitch, 1973). The study had two primary objectives. The first objective was to focus on the relationship between communication channels and individuals' perceptions of medical marijuana. The second objective of this research was to gather data to determine how various communication channels relate to perceived reliability of information about medical marijuana. The survey collected data about demographic groups from

within the survey population to uncover relationships between perceived reliability of information about medical marijuana provided through communication channels based on various demographic profiles. Additional analysis determined how medical marijuana is perceived through the communication channel from which the information is derived.

Theoretical Perspective

For this research, it was necessary to gain insight into how media consumers research information on medical marijuana through numerous communication channels and how the utilization of communication channels relate to the perceptions of reliability of information received regarding medical marijuana. While investigating the theoretical framework for this study, the researcher considered Social Learning Theory, Media Dependency Theory, and Uses and Gratifications Theory, eventually selecting Uses and Gratifications Theory (UGT) (Katz, Blumler, & Gurevitch, 1973) to serve as the theoretical framework for this study. The premise of UGT suggests that consumers select media based upon the amount of gratification received from that media channel, and that consumers actively seek out certain media to fulfill that gratification. Chapter Two will further discuss these theories and the basis for selection of UGT.

This research sought to understand how various communication channels relate to both consumers' perceptions of medical marijuana as well as the perceived reliability of the communication channels' information about medical marijuana. As will be elaborated upon in Chapter Two's literature review, Uses and Gratification Theory is relevant and will provide a sound basis for this research.

Research Questions and Hypotheses

With the ever-expanding channels of communication available for individuals to obtain and send information, it was critical to understand how media audiences gather information and

utilize various communication media channels in regards to medical marijuana education. This research aspired to answer the following research questions:

RQ1: Is there a relationship between the usage of communication channels and perceptions of credibility and willingness to share information?

H1: There is a statistically significant association between time spent utilizing a communication channel and perceived credibility of that communication channel.

H2: There is a statistically significant association between time spent utilizing a communication channel and willingness to share information from that channel.

H3: There is a statistically significant association between perceived credibility of information from a communication channel and willingness to share information from that channel.

Research Question One investigated the relationship between an individual's usage of a communication channel and his or her perceived credibility of information from that channel. This question explored the association between communication channel utilization and the willingness to share information from that channel. This research question sought to understand whether there is a relationship between perceived credibility of a communication channel and an individual's willingness to share information. The researcher investigated individuals' channel utilization by uncovering the amount of time spent on the channels researched. Survey responses provided the researcher with a basic understanding of overall perceived credibility of communication channels. Answers from the questionnaire provided insight on the extent to which individuals are willing to share information from communication channels overall. By tracking overall communication channel utilization, associations with respect to medical marijuana were examined.

This research question sought to understand a general overview of how an individual's usage of a communication channel relates to his or her willingness the share information from that channel. The results from this research question were used as a baseline to determine whether there is a relation between a user's willingness to share information about any topic and his or her willingness to share information specifically about medical marijuana. Similarly, credibility of information and willingness to share information were analyzed to determine whether a relationship exists. That information also served as a useful tool in making comparisons later in this study.

RQ2: Is there a relationship between the usage of communication channels and perceptions of the credibility of medical marijuana information?

H4: There is a statistically significant association between time spent utilizing a communication channel and perception of credibility of medical marijuana information from that channel.

H5: There is a statistically significant association between perceived credibility from a communication channel and perceived credibility of medical marijuana information from that channel.

H6: There is a statistically significant association between willingness to share information from a communication channel and perceived credibility of medical marijuana information from that channel.

Question Two explored how utilization of different communication channels assists in the formation of personal attitudes about the credibility of medical marijuana information found on each channel. Through examining relationships between duration of communication channel utilization and perceived credibility of medical marijuana information, the researcher explored associations between these two variables. Further associations between overall perceived

credibility of a communication channel and the perceived credibility of medical marijuana information on that channel were examined to see whether a relationship exists. Additionally, potential associations between an individual's willingness to share information from a communication channel and the perceived credibility of medical marijuana information from that channel were investigated.

Research Question Two provided relevant information regarding the perceived credibility of information about medical marijuana. By understanding the relationships between communication channel utilization and individuals' perceived credibility about medical marijuana information received, educators, physicians, and government agencies can utilize this information to properly disseminate facts about medical marijuana. Furthermore, by understanding the associations between usages, including time spent on a communication channel and individuals' perceived credibility, individuals can be targeted based on the communication channels that will provide them with the information they seek.

RQ3: Is there a relationship between the usage of communication channels and willingness to share medical marijuana information received from a channel?

H7: There is a statistically significant association between time spent utilizing a communication channel and willingness to share medical marijuana information from that channel.

H8: There is a statistically significant association between perceived credibility from a communication channel and willingness to share medical marijuana information from that channel.

H9: There is a statistically significant association between sharing information in general from a communication channel and willingness to share medical marijuana information from that channel.

H10: There is a statistically significant association between perceived credibility of medical marijuana information from a communication channel and willingness to share medical marijuana information from that channel.

Question Three sought to better understand individuals' willingness to share information about medical marijuana from various communication channels. This research question was created in an attempt to understand the relationship between each communication channel and an individual's willingness to share information about medical marijuana. This research question also enabled the researcher to see which communication channels are being utilized to share medical marijuana information and what factors relate to that decision.

By establishing the extent to which communication channels are related to individuals' willingness to share information about medical marijuana, advancements can be achieved on proper distribution of information about medical marijuana. Users' willingness to share information about medical marijuana based upon its relationship with communication channel utilization will enable specified information distribution based upon these findings.

RQ4: Is there a relationship between usage of communication channels and individuals' perceptions of the effectiveness of medical marijuana as a treatment option?

H11: There is a statistically significant difference between communication channel utilization and individuals' perceptions of information about medical marijuana's effectiveness.

H12: There is a statistically significant association between time spent utilizing a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

H13: There is a statistically significant association between perceived credibility from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

H14: There is a statistically significant association between willingness to share information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

H15: There is a statistically significant association between perceived credibility of medical marijuana information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

H16: There is a statistically significant association between willingness to share medical marijuana information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

Question Four sought to uncover how various communication channels relate to individuals' assessment of the effectiveness of medical marijuana as a treatment option for serious medical conditions. The researcher collected data to identify how information related to medical marijuana is perceived based on the communication channel from which that information was obtained. The researcher investigated any differences between various communication channels and the perceived effectiveness of medical marijuana. Testing these differences allowed the researcher to look across the six communication channels to compare variables. Associations between perceived effectiveness and other variables including duration of time spent on each channel, credibility of the channel, perceived credibility of medical marijuana information on the channel, and individuals' willingness to share information were also examined. This information will prove to be useful not only for medical marijuana research but

also for communication about other medical treatments. It is critical to understand which variables, when seeking a relationship about the effectiveness of marijuana as a treatment option, individuals utilize.

RQ5: Does communication channel usage help individuals form an opinion on the legalization of medical marijuana?

H17: There is a statistically significant difference between communication channels and individuals' opinions on the legalization of medical marijuana.

H18: There is a statistically significant association between time spent utilizing a communication channel and individuals' opinions on the legalization of medical marijuana.

H19: There is a statistically significant association between perceived credibility from a communication channel and individuals' opinions on the legalization of medical marijuana.

H20: There is a statistically significant association between willingness to share information from a communication channel and individuals' opinions on the legalization of medical marijuana.

H21: There is a statistically significant association between perceived credibility of medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana.

H22: There is a statistically significant association between willingness to share medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana.

H23: There is a statistically significant association between opinions of marijuana as a treatment option from a communication channel and individuals' opinions on the legalization of medical marijuana.

Research Question Five explored how the use of different communication channels relates to individuals' opinions on the legalization of medical marijuana. The researcher sought to discover any differences in the communication channels used and individuals' opinions on medical marijuana. Researching the differences allows for the comparison of variables across communication channels, instead of looking within each channel. Additionally, association between communication channel utilization and individuals' opinions on the legalization of medical marijuana were examined. Finally, relationships between perceived credibility of the communication channel, perceived credibility of medical marijuana information from that channel, individuals' willingness to share information from a communication channel, and willingness to share information about medical marijuana from a communication channel were examined. By examining the relationship between communication channel utilization and individuals' opinions on the legalization of medical marijuana, results can initiate future research to examine the actual content of information about medical marijuana on these channels.

Definition of Terms

Cannabinoids

The term "cannabinoids" refers to the chemicals that are present within the marijuana plant (National Institute on Drug Abuse, 2017).

Communication Channel

The term "communication channel" in this research will refer to the medium through which information is transmitted and received. For this research, those media will include: television, newspapers, radio, and social media sites including Facebook, Instagram, and Twitter. A further explanation of communication channels as well as justification as to why these particular communication channels were explored occurs in Chapter Two.

Enabler

An “enabler” is a useful instrument (Graham, M.E., Dutton, W.H., and Castells, M., 2014). Each individual communication channel has the capacity to serve as an enabler in this research.

Facilitator

The term “facilitator” refers to “an infrastructural tool that gets used by actively engaged individuals” (Dutta-Bergman, 2006, p. 484). Each individual communication channel is a catalyst to the user and can be a facilitator.

Medical Marijuana

The marijuana plant contains chemicals that can be used to treat a wide range of conditions. The term medical marijuana (cannabis) refers to the utilization of portions of the plant or the entire plant, unprocessed, to treat a variety of medical conditions (National Institute on Drug Abuse, 2017). In Pennsylvania, the PA Department of Health includes the following medical conditions as accepted diagnoses for the consumption of medical marijuana: Amyotrophic Lateral Sclerosis (ALS), autism, cancer, Crohn’s Disease, intractable spasticity, epilepsy, glaucoma, Human Immunodeficiency Virus (HIV)/ Acquired Immune Deficiency Syndrome (AIDS), Huntington’s Disease, Inflammatory Bowel Syndrome, intractable seizures, Multiple Sclerosis, Neuropathies, Parkinson’s Disease, Post-traumatic Stress disorder, Chronic Pain, and Sickle Cell Anemia (PA.gov, 2017).

Normative Influences

As a component of Uses and Gratifications Theory, “normative influence” describes how individuals in certain social structures or lifecycle positions will opt for different types of satisfactions based upon that structure (Blumler, 1979). Normative influences in this research

consist of the respondents' affiliation with the university, marital status, sex, age, and education level.

Socially Distributed Life Chances

Life chances, according to Max Weber (1978), refer to an individual's opportunities to gain access to important or scarce resources and valued outcomes. Socially distributed life chances are thus the relationship that social class has upon those life chances. Household income and types of communication channels utilized serve as primary indicators for uncovering socially distributed life chances in this research.

Subjective Reaction or Adjustment

Subjective reaction is the creation of value as interpreted by the individual, and value is a subjective process (Weber, 2012). In this research, credibility of communication channel, and confidence in communication channel will enable an understanding to subjective reaction.

Scope

To evaluate the relationship between communication channels and individuals' perceptions of medical marijuana, a quantitative research study was conducted. The researcher designed the questionnaire for distribution attached as Appendix A. A random sample of students and the entire population of management, faculty, and staff at a university in western Pennsylvania received the survey. An explanation for sample selection will be discussed in Chapter Three. A survey was created through Qualtrics and embedded into an email that was sent to the study population. By including all segments of the university population, a wider demographic of responses was gathered and comparisons were made. With the myriad of illnesses treated by the use of medical cannabis, encompassing patients of all ages, a wider range of demographic data was collected and analyzed.

The initial email was sent to 2,000 students, from a total student population of approximately 12,850 (IUP at a Glance, 2016). Additionally, the survey was sent to all university faculty, management, and staff. The employees of the university were comprised of 1,662 faculty, management, and staff members (M. Smelko, personal communication, November 29, 2016). To obtain an acceptable response rate, the sample consisted of a random sample of students, both undergraduate and graduate, as well as the total population of faculty, management and staff. The results provided relevant data that through which generalizations were made. The goal was to obtain enough survey responses to achieve a 95% confidence level.

The data was collected through Qualtrics, and the sample was eligible to participate in a drawing for a $50 Wal-Mart Gift Card. The survey was distributed in September 2017, and remained open for a period of two weeks to gather data, sending an initial request for participation as well as two reminders during that time frame. The instrument was created to be completed quickly, taking no more than 3 to 5 minutes to complete. That, coupled with the subject matter, allowed for collection of 595 responses, resulting in an acceptable confidence level greater than 95%. Once the data was gathered appropriate statistical tests were conducted to analyze the data and draw appropriate conclusions. The complete process of data gathering and analysis are further detailed in Chapter Three.

Limitations

The first limitation of this study was the population utilized for this research, which was comprised of faculty, management, staff, and students at a university in western Pennsylvania. With the university seated in western Pennsylvania, the information gathered provides more relevant information to the legalization of marijuana in Pennsylvania. Since the legalization of medical marijuana is new in the state of Pennsylvania, and distribution of the medicine has not

yet begun, knowledge and perceptions may be limited. A second limitation was the various communication channels utilized among these demographics of respondents. Faculty, management, staff, and students were incorporated into this research to minimize this limitation. The final limitation for this study was the possible lack of access to computers to participate in the survey, as certain groups of staff members within the university may not have adequate access. This study contained no delimitations.

Organization of Study

The remaining four chapters presented here elaborate on the research. Chapter Two is comprised of a comprehensive review of the literature. This literature review enables an understanding of traditional and trending communication channels, the development and utilization of medical marijuana, as well as a review of how communication channels have been used in medical communication in general and how those channels relate to users' perceptions of reliability. Uses and Gratifications Theory is discussed as well as additional theories considered by the researcher that were examined and deemed less applicable.

Chapter Three explains the research methodology that was utilized by the researcher. Throughout the chapter, the selection process for choosing an on-line Qualtrics survey is explained. The selection process for respondents, the population, the types of survey questions, and the timeline of data collection is presented. Additionally, Chapter Three explains the research questions and hypotheses in detail and the data analysis process. This chapter also defines the process of how the researcher ensured reliability and validity of the survey instrument.

Chapter Four presents the findings of the data analysis. Demographic results are presented between age groups, gender, and university affiliation. This analysis includes

understanding the relationship between communication channel usage and perceptions of credibility of medical marijuana information. Additional research analyzes the relationships between communication channels and individuals' willingness to share information. The research findings from this chapter are a result of the methodology discussed in Chapter Three.

The final chapter of this research, Chapter Five, answers the research questions that are being investigated in this paper. This consists of examining the results of the data analysis and reporting the findings. Comparisons to the findings and what has been uncovered in the literature review of Chapter Two are explored and discussed. Chapter Five also provides reflections from the researcher about the study overall including any limitations uncovered during research and additional opportunities for future scholarly research that arise.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

This chapter is comprised of an examination of the literature necessary to provide a basis for the need for this study. Initially, various theoretical frameworks were considered for utilization for the study. After examining an array of theoretical options, Uses and Gratifications Theory (UGT) was explored in greater depth as it provided the most applicable framework for this study. UGT assists in understanding media effects as well as consequences by taking an audience-centered approach to mass communication to understand why individuals consume media (Pavlik & McIntosh, 2004). Furthermore, additional literature was reviewed to understand medical uses of marijuana throughout history. Literature on public perceptions of medical marijuana as a health care option was researched. Significant concentration was placed on understanding how individuals utilize various communication channels to obtain health information.

Communication channels have evolved over the past century, and will continue to evolve and transform for decades to come. From traditional media such as radio, newspaper, and television, to social networking sites such as Facebook, Instagram, and Twitter, individuals in today's societies have a variety of options enabling them to utilize communication resources to self-educate on a range of topics. These communication channels provide access to information, opinions, and resources on healthcare diagnoses and possible treatment options, including the topic of this research, medical marijuana.

Medical marijuana is a viable treatment option for numerous medical conditions including cancer, epilepsy, PTSD, AIDS, Autism Spectrum Disorders and more (Hadland,

Knight, & Harris, 2015). “Over the past several years, medical marijuana has received increased attention in the media and use of the drug has increased across the United States, with the number of frequent marijuana users increasing by 40% since 2006” (D’Amico, 2015). According to the Pennsylvania Department of Health, over 78,000 residents of the Commonwealth currently suffer with some form of cancer (Cancer Facts & Figures, Pennsylvania, 2016). Additionally, over 2.5 million Americans suffer from epilepsy, with an estimated 181,000 new cases per year, affecting approximately 1-2% of the population of the Commonwealth of Pennsylvania. Furthermore, PTSD is reported to affect nearly 20% of veterans who served in Afghanistan and Iraq (veteransandptsd.com, 2008). With its recent legalization in the Commonwealth of Pennsylvania to treat a wide array of medical conditions for Pennsylvania residents, media communication about marijuana’s medicinal uses will continue to remain relevant.

Current research on communication channels and medical marijuana is limited, thus allowing for this research to explore audience perception of medical marijuana and consider various theoretical frameworks to continue research. Due to the exploration of communication channels combined with the desire to understand trends related to usage and perceptions, attitudes, and credibility of information, three theories were originally considered for this research: Uses and Gratifications Theory, Social Learning Theory, and Media Dependency Theory. After an examination of each framework, the researcher concluded Uses and Gratifications Theory serves as the most applicable theoretical foundation for this research. It will provide a solid foundation to examine how individuals use various communication channels to obtain information about medical marijuana, how credible the information received through these communication channels is perceived, and users’ willingness to share information.

Theoretical Perspective

Differences in communication preferences and how they relate to the selection of communication channels in relation to medical marijuana is a new topic. Medical marijuana is emerging as a treatment option for serious medical conditions, and Uses and Gratifications Theory will allow for a better understanding as to why users are selecting various channels of communication to tap into research information on medical marijuana, as well as understand these users' perceptions as to the credibility of information they receive via various channels. Attempting to understand the "gratifications" that individuals' receive that attract them to media and keep them, Cantril (1942) was one of the first communication scholars to develop scholarship to shed light on these "gratifications". Research on gratifications continued throughout the next several decades, and in the 70's researchers began to examine audience motivations to understand the "why" behind the gratifications (Ruggiero, 2000).

Uses and Gratifications Theory

Overview

How various communication channels affect media audiences has been a topic of discussion for decades. From the birth of traditional channels of communication such as radio transmission by Professor Reginald Aubrey Fessenden on December 23, 1900 (Belrose, 2002), and the first television and transmission system invented by Philo Taylor Farsworth in 1927 (sfmuseum.org, 2017), to new media including social networking websites such as Facebook, Twitter, and Instagram, individuals are changing their media channel preferences. Businesses, organizations, and individuals are changing their messages on social media platforms as well. Stemming from Lasswell's functionalism (1948), the fundamental principle behind the Uses and

Gratifications Theory focuses on how people utilize various forms of media and how they in turn become dependent on that media for enlightenment on specific subject matter.

UGT and Communication Channels

Uses and Gratifications Theory (UGT) research has been used to study traditional communication channels for the past half-century, and is still being applied to scholarly studies on newer communication platforms. Early research involving UGT often focused on gratifications sought by media consumers, not taking into consideration gratifications or any other outcomes (Rayburn & Palmgreen, 1984). In 1964, Mendelsohn utilized UGT to better understand radio listening by making generalizations about listenership. Exploring children's mental abilities and understanding television's influence on their relationships with family members and friends, Schramm, Lyle, and Parker (1961) used UGT as framework for their research. In an article by Greenberg and Dominick (1969), UGT was used to examine teenagers' utilization of television as a tool for informal learning, and how social class and race relate to their patterns of usage. More recently, Rubin (2009) argued that UGT, the media and the content within that media are influential to users, along with other potential outside influences.

UGT research developed throughout the 1970's, as researchers shifted their focus from understanding audience motivations to assessing gratifications received from media use. Audiences select certain media and consume it based on their wants and needs, fueled by their perceptions of what that media will offer (Palmgreen & Rayburn, 1985). With respect to the Uses and Gratifications Theory, McQuail, Blumer, and Brown (1972) suggest the following four categories of audience needs and gratifications, from a media perspective: diversion, personal relationships, personal identity/individual psychology, and surveillance. Blumler (1979) created tables to classify variables that would associate social positions with media satisfactions.

Through creation of these tables, Blumer (1979, p. 27) then reorganized the information into an additional chart that reordered the background variables in an attempt to classify their relationship to media satisfaction, which is illustrated in Figure 1.

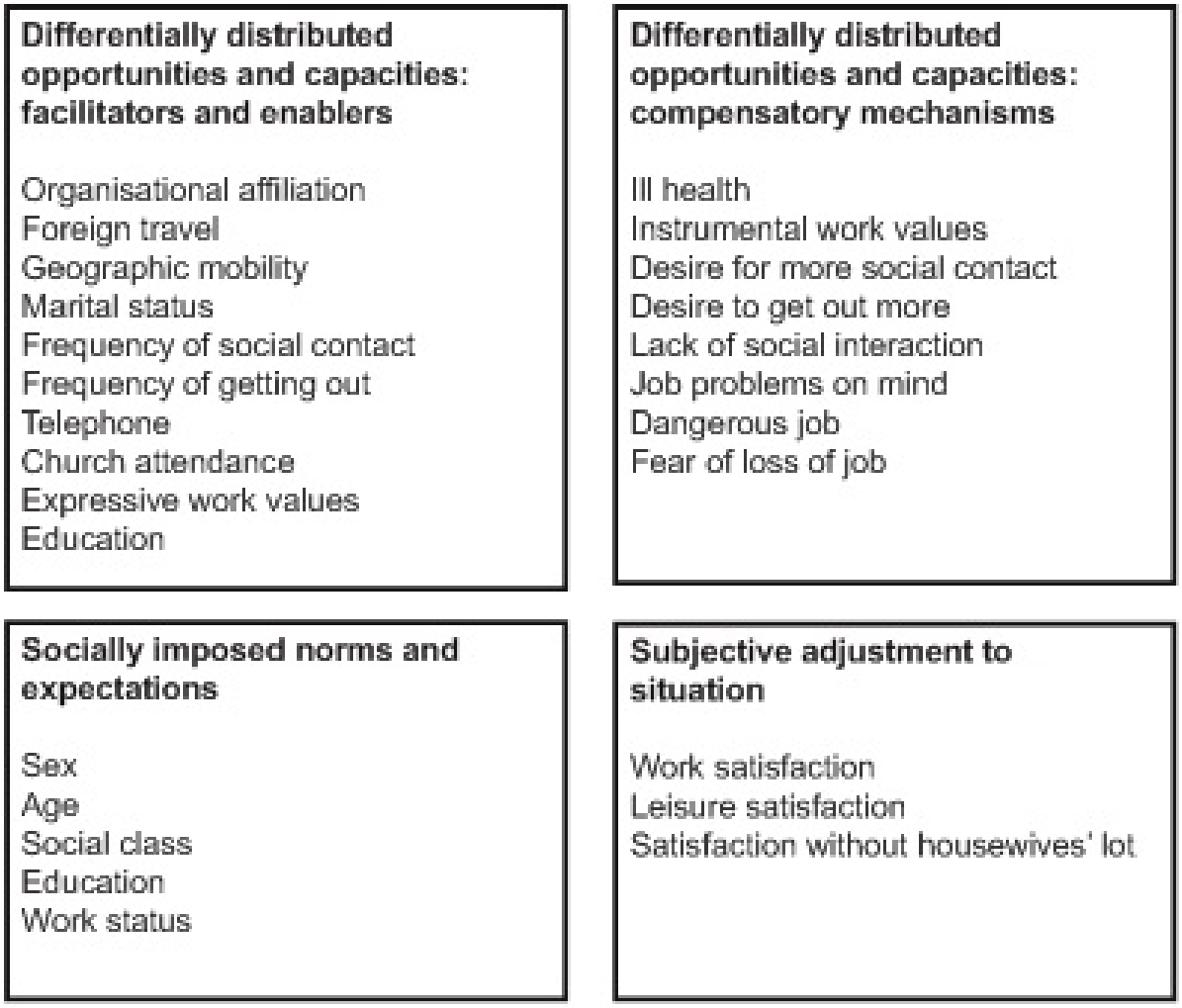

Figure 1. Original graphic illustrating the framework for re-ordering relationships between social background and media satisfaction

From the framework in Figure 1, Blumler identified three categories of media gratification: normative influences, socially distributed life chances, and subjective reactions of

the individual (p. 27). The first category, normative influences is represented in the bottom left quadrant of Figure 1. The next category, socially distributed life chances are denoted in Figure 1 as both the top left and the top right quadrant. The final category, subjective reactions is the bottom right quadrant of Figure 1. These categories became known as symbolic interactionism and will remain the focus of this research.

Blumler's research on media uses and gratifications remains pertinent for both traditional channels of communication and new media channels. As the Internet and social networking sites continue to evolve, gaining popularity and usage, researchers have been utilizing a UGT approach to better understand contemporary mass communication audiences. Utilizing a UGT approach to explore digital communication, Newhagen and Rafaeili (1996) developed five Internet characteristics of communication, defined as multimedia, hyper-textuality, interactivity, synchronicity, and packet switching. Additionally, Wenner (1985) contended that individuals seeking news information via the Internet may indeed be affected by it, in various ways. UGT will continue to serve as framework for compelling research that aims to understand user relationships with new media platforms, found in an array of cultural settings (Rubin, 2009). Arguably, UGT will remain relevant as a theoretical framework for more advanced communication scholarship, stemming from a need to understand new media platforms and the uses and gratifications that are apt to be associated with them. In short, people have access to more information than ever, and new research will help determine what they do with it, and why.

UGT and Healthcare Information-Seeking

An investigation into current research utilizing UGT and researching communication channels and medical marijuana produced no results yielding a need to expand the literature reviewed to include UGT and health information. In a study of adolescents in Ghana,

Borzekowski (2006) utilized the Uses and Gratifications Theory as the theoretical framework for understanding why the youth in Ghana turn to the Internet as the preferred communication channel for medical information. Thirty-nine percent of respondents reported using the internet to obtain sexual health information (Borzekowski, 2006). A similar study was conducted, again using Uses and Gratifications Theory as framework for a study of girls in Nigeria who sought hearth care information online (Nwagwu, 2007). The results from this survey indicated that 45.19% of participants utilized the internet to obtain information on reproductive health. Additionally, in a qualitative research study, 25 in-depth interviews of individuals between 18 and 56 years of age were conducted to determine social media usage (Whiting & Williams, 2013). Over 80% of interviewees reported using social media for self-edification with health concerns (Whiting & Williams, 2013). To ensure that Uses and Gratifications Theory was the most relevant framework, an examination of social learning theory and media dependency theory was conducted.

Other Theories Examined

Social Learning Theory

The second theory examined in developing the theoretical framework for this research was *social learning theory* (Bandura, 1971), later known as *social cognitive theory.* Social learning theory contends that individuals practice observational learning, gaining information and then storing the new information as visual pictures or verbal cues. Bandura's theory focuses on how change can influence the behaviors of individuals as well as affect their development (Grusec, 1992). According to Grusec, by self-regulation, individuals can retain their personal beliefs and ideologies, regardless of any situational changes that may occur.

Although social learning theory is used to explain human behaviors, it is also used to explain media effects of mass communication. Social learning theory was dismissed as the theoretical foundation for this research for a variety of reasons. Although applicable to the research being conducted, it will not provide a sound theoretical framework for this particular study. This research aimed to investigate the relationship between communication channels and how they relate to users' perceptions of credibility of information, specifically regarding the use of *medical cannabis* (marijuana). Social learning theory addresses how individuals learn from one another in a way that will ultimately change the social and ecological system (Reed et al., 2010). Social learning theory focuses on self-efficacy (Bandura, 1971) and an individual's ability to succeed and to believe in themselves. This research attempted to identify how individuals obtain medical and health information and not in understanding one's self-efficacy, thus making Uses and Gratifications Theory a more appropriate selection as the theoretical basis for this research.

Media Dependency Theory

The third theory evaluated for consideration as the theoretical framework for this research was the *media dependency theory* (Ball-Rokeach & DeFleur, 1976). To develop systemic understanding of the relationship between audience, the media, and society, media dependency theory contends that media will continue to be more important to those individuals who are more dependent on the media to fulfill their individual wants and needs. Ball-Rokeach and DeFleur (1976) explain that the degree of media dependence affects individuals on three levels: cognitive, affective, and behavioral. If media satisfies the need of the individual, that individual will be more likely to become dependent on that communication channel to satisfy his or her individual wants and needs. During times of social instability, media dependency increases as media

consumers need to obtain information for the purpose of re-evaluating their opinions and stance. Finally, based upon the needs of active, changeable audiences, media dependency will also change accordingly. Ball-Rokeach (1985) further developed the theory, identifying more specific effects and media dependency, based upon users' information-seeking goals.

Figure 2 depicts the conceptual model demonstrating the construct of media dependency theory (Ball-Rokeach, 1976). This model depicts how the dependency on media systems by audiences create cognitive, affective, and behavioral effects. Needs of the audience are dependent upon outside factors that individuals have no control over. The Media-Dependency Theory Conceptual Model looks at the larger social system an individual belongs to.

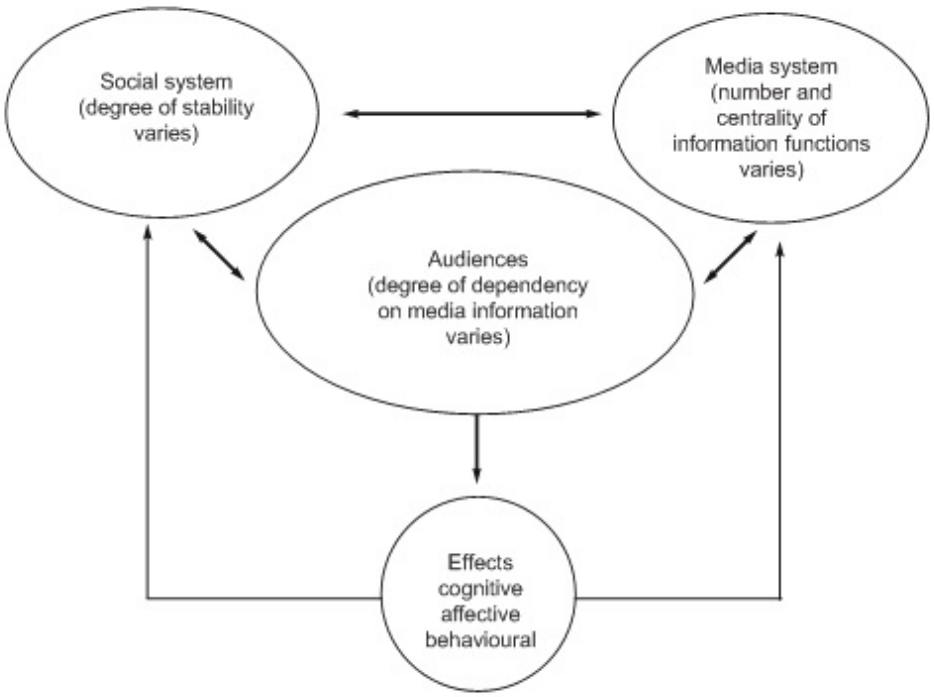

Figure 2. Original graphic illustrating the media-dependency theory conceptual model.

Figure 3 depicts the flow of information in media dependency theory, illustrating more specific effects (DeFleur & Ball-Rokeach, 1989). This latter model aims "to explain why mass communication sometimes have powerful and direct effect and other times have indirect and

rather weak effects"(p. 302). This model uses a four step approach to analyzing the processes that result in media effects.

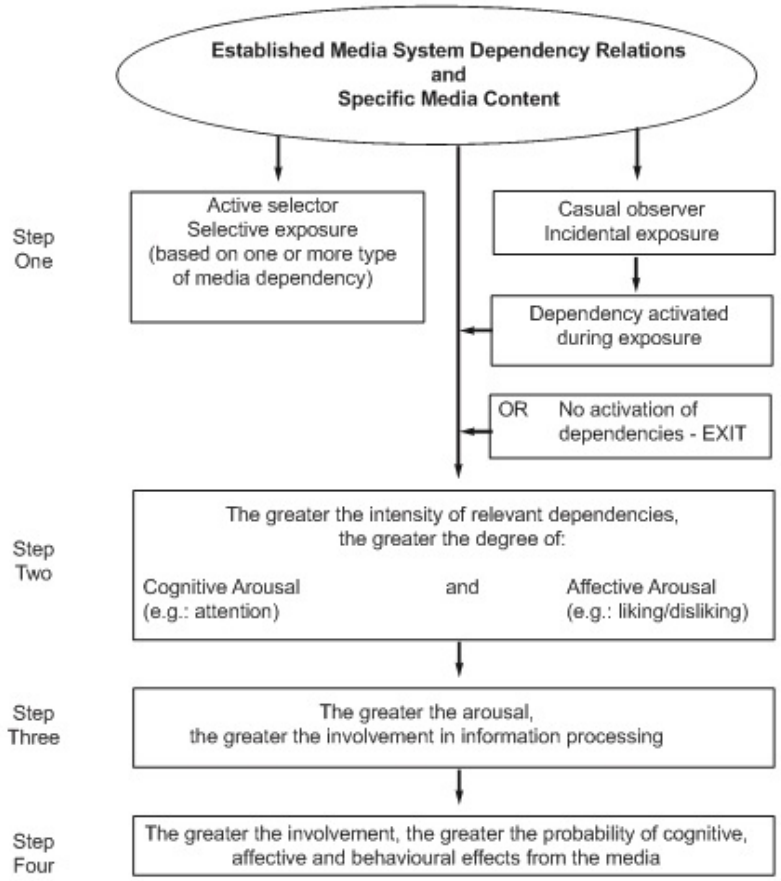

Figure 3. Original graphic illustrating the effects of information in media dependency theory.

Media dependency theory was excluded from consideration as the theoretical basis for this research for a variety of reasons. First, the primary objective of this research is not to understand the extent to which individuals utilize communication channels for information on medical marijuana. Rather, this research attempts to understand which communication channels are being utilized for information about medical marijuana, and how credible users believe the information disseminated through those channels to be. Secondly, the dependence upon the communication channel, although important, is not the primary objective of this research.

After reviewing the main points of each of the three theories considered for this research, a theoretical framework is selected. Social learning theory focuses on an individual's self-efficacy and their ability to learn and succeed. Media dependency theory explains the dependence on media that individuals have, and how that relates to the society with which they reside. Uses and gratifications theory examines how and why an audience seeks out specific media, thus making uses and gratifications theory the most applicable framework for this research.

History of Medical Cannabis (Marijuana)

The utilization of medical marijuana (cannabis) to treat physical ailments and various medical conditions is not a new concept. Cannabis has provided effective treatment to both children and adults for numerous conditions and diseases. From alleviating pain in terminally ill patients to providing medical relief for certain chronic and mental health disorders, medical marijuana has myriad uses.

Cannabis use to treat medical conditions and ailments has been in existence for centuries, as far back as 2700 BC, for the treatment of a variety of ailments including gout and rheumatism by the Chinese (Li, 1974). According to Bloomquist (1971), American medical journals were recommending the use of hemp for treatment of venereal disease, skin inflammation, and incontinence in the late 18th century. Marijuana use was legal in the United States until 1937 when the government passed the Marijuana Tax Act.

Although marijuana is becoming legal as a medical treatment option in many states across the country, it is still illegal in the eyes of the federal court system. In the United States today, medical marijuana is legal in 23 states, the District of Columbia, and Guam (Hanson & Garcia, 2018), and in 2016 the Commonwealth of Pennsylvania passed a law legalizing medical

marijuana in the state. Although marijuana use is legal in several states for medicinal purposes, the Food and Drug Administration (2016) has not approved the use of marijuana. Under the Controlled Substances Act, marijuana is still classified as a Schedule I substance, one that has no acceptable medical use and has a high degree of chemical dependency (Hanson & Garcia, 2018).

Medical Marijuana Usage and Effects

In an attempt to locate research that included medical marijuana and the college population, articles were sought through both GoogleScholar and Ebscohost. Although no current research exists that includes the target population of this study, it is important to understand other research about medical marijuana as a treatment option. Medical marijuana has been utilized as a treatment option for individuals of all ages from the very young to the elderly. Since the legalization of marijuana is recent and continuing to increase, there is no literature available that indicates the long-term effects of its usage as a treatment for medical conditions.

Medical marijuana has been used to treat children with an array of conditions, by using the chemicals found in cannabis that provide symptomatic relief. Chemicals are extracted from the marijuana plants as oils and delivered to children in liquid or capsule form, allowing quicker absorption into the blood stream (Stubblefield, 2014). In addition to the liquids or capsules, medical marijuana is currently being produced in an assortment of other forms, which include baked goods, candies, and soft drinks to appeal to younger users (Wang, 2013). In the Delaware Medical Marijuana Act, the State of Delaware's Search and Services Information (2016) lists specific uses for marijuana among children, which include muscle spasms, pain, cancer, and seizures. Charlotte Figi, a young girl from Colorado who suffered Dravet's syndrome causing her to have over 300 seizures per week found a strain of medical marijuana that reduced her seizures to less than a handful per week (Stubblefield, 2014).

Medical cannabis may be administered to help make the terminally ill and the elderly more comfortable during end of life, as well as to treat an array of medical conditions. Medical cannabis is used in palliative care to relieve symptoms, helping patients to improve their quality of life (Philipsen, Butler, Simon-Waterman, & Artis, 2014). Not only can medical marijuana be used for palliative care, but it has been used as a treatment option for patients suffering a range of conditions including diabetes, epilepsy, irritable bowel syndrome, and mesothelioma (Timko, 2014). In Connecticut, doctors have experienced success assisting patients in discontinuing opiate use through a medical marijuana protocol (Alvarez, 2016). More recently, the Commonwealth of Pennsylvania has legalized the use of medical marijuana for the treatment of numerous serious medical conditions (PA.gov, 2017).

Since no recent studies have been conducted to determine the long-term effects of marijuana usage to treat medical conditions, medical professionals have only short-term usage results to analyze. According to Anderson (2015), an area of the brain known as the hippocampus is particularly sensitive to the effects of marijuana, and the younger the individual who consumes the drug, the more likely they will become addicted. Unfortunately, throughout the past forty years, no long-term marijuana studies have been conducted, so only shorter-term use of cannabis is known to medical professionals (Philipsen et al., 2014). Therefore, although medical marijuana has demonstrated the ability to provide relief to children with extreme seizure disorders, it is unclear what type of long-term effects use of the drug may cause in their developing brains (Stubblefield, 2014). Without the availability of any long-term research available, it is important to have a trusted and credible source to find information about medical marijuana. By understanding which communication channels are deemed trusted and credible by the target audience, this research will assist in proper dissemination of information in the future.

Trust and Credibility of Communication Channels

With the lack of current research addressing medical marijuana information dissemination through communication channels and individuals' preferences for sources of that information, it is sensible to expand research to include trust and credibility of communication channels in general. Significant research has been conducted analyzing trust and/or credibility of news media. The foundational research conducted, which examined trust and credibility of news media was led by Roper who compared media's credibility of radio, television, newspaper, and magazines (Roper, 1985). Roper's research occurred every two years, starting in 1959, and he asked participants the following question: "If you got conflicting or different reports of the same story from radio, television, the magazines, and the newspapers, which of the four versions would you be most inclined to believe- the one on radio or television or magazines or newspapers" (p. 3). After 1959, television surpassed newspaper in relative media credibility (Kohring & Matthes, 2007).

Since 1990, more than 95 peer reviewed journals have contained over 200 research articles on this subject, illustrating the significance of this topic (McLeod, Wise, & Perryman, 2017). Trust is considered a critical factor in understanding media effects, as it allows researchers to evaluate how users rate and perceive the news media they consume (Tsfati & Cappella, 2003). When assessing people's attitudes toward the credibility of news information received through television, newspaper, and online news, results suggest that individuals are skeptical about credibility of data received through all three channels; however, out of the three channels, newspapers held the highest credibility rating (Kiousis, 2001). In a marketing study of users' communication channels, traditional communication channels, such as television, have overwhelmingly received more favorable scores from viewers concerning trust and reliability,

compared to their social media counterparts (Danaher and Rossiter, 2009). Individuals who were skeptical of mainstream news media still consumed local news on television as well as reading the local newspaper (Tsfati & Cappella, 2003).

Trust factors are crucial in both traditional media outlets such as television, newspaper, and radio, as well as new social media outlets such as Facebook, Twitter and Instagram. Facebook is not perceived as a very credible source for information, possibly because of its primary use to make social connections (Kaye & Johnson, 2014), and Twitter is perceived as even less credible than Facebook. Results from a study of perceived credibility of tweets indicated that the author of the tweet affected the perceived credibility or lack thereof for a tweet (Morris, Counts, Roseway, Hoff, & Schwartz, 2012).

Media Use for Health Education

Using traditional media sources for health education has provided contradictory results in previous research studies. Television, radio, and newspaper campaigns have been successfully implemented to create positive changes and/or prevent negative changes in consumers (Wakefield, Loken & Hornik, 2010). In a study on safety belt utilization, a mass television media campaign produced and shown on local television channels, resulted in virtually no relationship between the use of safety belts and viewership (Robertson, Kelley, O'Neill, Wixom, Eiswirt, & Haddon Jr., 1974.) However, a mass television campaign seeking to prevent youth from cigarette smoking proved to be successful (National Cancer Institute, 2008).

Direct to consumer advertising of pharmaceutical products are inundating television airtime, with Americans viewing an average of 30 hours per year watching pharmaceutical ads (Brownfield, Bernhardt, Pha, Williams, & Parker, 2004), making television a necessary communication channel to investigate for this research. Findings of a study comparing direct to

consumer advertising of Vioxx and Celebrex presented a positive influx of osteoarthritis patients visiting their local physicians' offices (Bradford et al., 2006). Findings from a study by Lyles on direct to consumer advertisements of pharmaceutical products suggest that these advertisements do not provide adequate information about the overall changes of public health (Lyles, 2002). As continued funding allocated for direct to consumer advertising of pharmaceutical products, and evidence to support that these ads increase patients' demands for the drugs, physicians prescribing habits may be influenced (Gelladm & Lyles, 2007).

With the expansion of social media as a prominent communication channel for information dissemination, it is appropriate to conduct an overview of its current utilization. In a quantitative study among college students comparing attitudes toward social media, female students viewed social media more favorably than male students, but the findings were not statistically significant (Lewis, 2009). However, results of the same study comparing year in school and attitude toward social media indicated that junior and senior students viewed social media more favorably. Known as digital natives, individuals between the ages of 18-34 are more likely to prefer social media over other types of communication channels for personal interactions (Bolton et al., 2013).

Social media is used today to facilitate conversations concerning an array of topics, including health conversations about medical conditions as well as possible treatment options. According to Jha, Lin, and Savoia (2016), health care agencies need to communicate accurate information through the social media, as it presently serves as popular platforms for consumers to obtain critical health information. Kaplan and Haenlein (2010) explain how businesses and organizations can capitalize on the use of social media to promote business, and arguably, as Jha, Lin, and Savoia (2016) contend, social media are indeed used as tools of information for health

issues. Survey results of adolescent mothers showed that 80% of respondents shared health information that they received from a website (Logsdon, Mittelberg, & Myers, 2014).

With constant advancements in technology, patients and medical professionals need to utilize all of the resources available when making medical decisions about patient care, including social networking tools such as Facebook and Twitter. According to McNeil, Brna, and Gordon, (2012), research that relies on social media and is web-based is known as *infodemiology*, which can provide valuable insight on social media utilization on medical issues as well as medical misconceptions that can arise from inaccurate or outdated online information. A study conducted by Knight (2015) on the use of social media as a means to leverage the social media platform, explains clients' readiness to embrace such a learning platform. Additionally, Mackey and Schoenfeld (2016) remind us of the increased utilization of social media for the creation of online surveys to support the use of non-approved drugs to treat terminal illnesses.

In a 2005 study, when asked about levels of confidence in health care information received, information received directly from a physician rated highest among survey respondents, with 62.4% of adults expressing a high level of confidence in their physicians (Hesse, et al., 2005). Although these respondents held the most trust in information received from their doctors, 48.6% turned to online channels of communication *before* talking with their own physician, and only 10.9% of participants visited their physician first. Although users seek information on numerous communication channels, ultimately they have the most trust in the information they receive directly from their physician.

Medical Marijuana Information Dissemination

With the communication channels available for audience information gathering, medical marijuana information still appears to be limited in availability. Information that is easy to access

and available to patients and families of chronically ill and terminal patients is crucial for families to make sensible, final choices that are based on all available knowledge (Mackey, 2016). Research by Nelson (2012) indicates that in most cases the patients seeking the use of cannabis as a treatment option are more knowledgeable than the primary care physician they approach for guidance. Results of a survey to a selection of Delaware physicians indicate that 39% of the respondents felt knowledgeable or very knowledgeable on the use of medical marijuana as a treatment option (Rapp, Michalec, & Whittle, 2015). More than 90% of pharmaceutical students surveyed felt that more education on medical marijuana should be incorporated into their college curriculum (Moeller & Woods, 2015). Food and Drug Administration researchers (2016) also acknowledge the need for further scholarship that would help determine safe and effective ways for individuals to utilize medical marijuana to treat certain medical conditions.

Public Perception Research and Medical Marijuana

Since limited research exists about the relationship between various communication channels and audience perceptions of information about medical marijuana, it is important to understand the relationship between media outlets and individuals' perceptions about marijuana and other drugs both legal and illegal throughout the past. Public opinion research began after the propaganda era in the late 30's (Pooley, 2008). Upon formation of the Bureaus of Narcotics, Harry J. Anslinger, who had a background in journalism, was appointed as the head of the bureau (Korzeniewski & Salmon, 2006). Anslinger employed the media to campaign against marijuana, which proved to have been a powerful media campaign in the 1930's. In a harm reduction study examining illicit drug editorial pieces in newspaper articles, the review of these pieces about "drugs" and "harm reduction" were analyzed and results indicated that opponents

revealed that these news pieces actually invoked fear (Eversman, 2013). In a narrative study illustrating pregnancy and opiate addiction, findings indicated that portraying women of higher socioeconomic status altered perceptions about who to blame for the addiction, taking the blame off of the expectant mother in those cases (Kennedy-Hendricks, McGinty, & Barry, 2016).

Trends in public opinion regarding the usage of medical marijuana to treat certain medical conditions has begun to shift over the past decade, making the messages disseminated through communication channels and the perceptions of those messages critical. A research study conducted in 2004 by Khatapoush and Hallfors revealed that the majority of individuals surveyed were still opposed to the legalization of medical marijuana, even for medicinal use. Nearly a decade later, those perceptions had shifted. Research by Rubens (2014) indicated that every Gallop public opinion poll about the use of medical marijuana that has been conducted, demonstrated favorable results. Additionally, Mikos (2009) conducted a random telephone survey of California residents, which revealed that over 80% of survey participants were in favor of the use of medical marijuana, supporting Rubens'(2014) Gallop poll research. In a similar survey from Backus (2011) a few years later, research results demonstrated that only 17% of survey responders were against the use of medical marijuana. In a study conducted by Moeller (2015), 59% of pharmaceutical students felt that the legalization of medical marijuana should occur in all 50 states. Therefore, further public perception research is necessary in understanding society's perception about medical marijuana.

Society's Perception

Attitudes and societal stigmas about medical marijuana correlate to individuals' perceptions of medical marijuana usage, at least to some extent. Based on the literature reviewed, there are mixed opinions on the use of marijuana as a medical treatment option. In contemporary

society, there is still a negative stigma with cannabis use, even when used for medicinal purposes, causing the social movement for medical cannabis to be challenging for its leaders (Nelson, 2012). A correlation between attitudes about the availability of marijuana as well as potential harm and any comprehensive approval of its use is somewhat comparable to its real-world use, demonstrated in a study by Khatapoush and Hallfors (2004). Further research from a qualitative study conducted by O'Brien (2013) revealed that if the use of medical marijuana is accepted in the society in which users reside, the users were no longer perceived as criminals. Findings from a study of public opinion on medical marijuana in Norway and Israel indicated that public support for medical marijuana is apt to continue to increase (Sznitman & Bretteville-Jensen, 2015).

Media messages about medical marijuana focus heavily on government and policies. In a content analysis that investigated print media articles from 2008-2013, 39.6% of articles presented medical marijuana in a negative manner, compared to 30.8% of articles speaking of the positive effects of the utilization of the drug with most of the negativity focusing on local government (Kaiser, 2013). Kaiser's research also suggested that economic implications were reported in a manner to concern viewers. With the legalization of marijuana in California, print media research conducted in California from 1996 through 2005 showed an increase in the number of articles present, from approximately 70 articles utilizing the term medical marijuana as a headline in 1996 to over 400 articles in 2005 (Plume, 2006). As additional states continue to pass legislation legalizing medical marijuana, there is a possibility of more communication being disseminated, thus creating a need for additional research.

Synopsis of the Reviewed Literature

Throughout this chapter, the literature review has explored medical marijuana's use throughout history, conditions treated, and its use for both children and adults. Further investigation into the literature on this topic has provided insight into how communication channels are currently being utilized for individual healthcare research as well as uncovering public perceptions about medical marijuana. Three theoretical frameworks were reviewed to provide a sound basis for the structure of the research conducted in this chapter. From the theoretical framework, the emerging research questions and purpose of study were explained in Chapter One. After an analysis of the existing literature, the need for the study became apparent, thus providing a solid problem statement for this research.

Mass communication channels' relationship with their active audience has been a topic of research and debate. By conducting a review of three primary communication theories, the researcher concluded that Uses and Gratifications Theory provides the most appropriate theoretical framework for this research. Focusing on how media is consumed, and how users depend on media, UGT research has explored both traditional and newer communication channels from an audience gratification perspective. Uses and Gratifications Theory has been used by researchers to further understand how individuals choose and utilize various communication channels for research on health information. Since UGT is not the only theory that focuses on mass communication, other theories explored included both the Social Learning Theory as well as the Media Dependency Theory. It was determined that based on the proposed problem statement and research questions, UGT serves as the best theoretical approach to utilize.

Marijuana has been a medicinal drug for centuries treating illnesses ranging from gout to incontinence. In fact, marijuana consumption was legal in the United States until 1937 and now

in recent years, numerous states have once again legalized marijuana consumption for medical treatment options. Children diagnosed with cancer, epilepsy, and other chronic conditions have found medical marijuana to be a viable treatment option. Adults suffering from serious conditions including cancer, irritable bowel syndrome, PTSD and numerous other conditions have also turned to medical marijuana as the drug of choice. Unfortunately, with the newfound legalization of marijuana as a medical treatment in numerous states over the past decade, there are no long-term studies to show what types of negative or positive affects using the drug may cause.

For this research, it is critical to understand consumers' perceptions about information they receive about medical marijuana from various communication channels. In an attempt to further understand how individuals relate to the credibility of information about medical marijuana found through a collection of communication resources, it became necessary to review literature. A review of literature that addresses how media consumers perceive the credibility of medical information from various communication channels was necessary. Trust still ranked the highest in information provided directly by physicians (Hesse, 2005), but individuals seek information from other sources, often times the Internet and social networking sites, embracing these new learning platforms (Knight, Werstine, Rasmussen-Pennington, Fitzsimmons, & Petrella, 2014). Several previous studies imply the need for additional education on the use of marijuana as a medical treatment option (Moeller & Woods, 2015; Nelson, 2012; Rapp, Michalec, & Whittle, 2015).

With the continued legalization of medical marijuana, understanding the relationship between communication channels and society's perception of its use is critical. Over the past ten years, public perception of the drug is starting to shift, showing a majority of respondents favor

the use of the drug whenever prescribed by a physician (Rubens, 2014). Although public opinion is shifting, a negative stigma with its use is still in existence (Nelson, 2012). The gap in this existing literature is the research that deals with communication channel utilization and individuals' perceptions on the credibility of information about medical marijuana and their willingness to share that information. Although existing research discusses public perception, there is no link between the formation of these perceptions and communication channel usage.

The next chapter, Chapter Three explains the methodology used in this research. The use of an on-line Qualtrics survey is justified and explained in depth. Chapter Three also discusses the reliability and validity of the survey instrument to ensure the utmost reliability. Chapter Four analyzes and presents the findings of the data. The conclusion of the research, Chapter Five, answers the research questions presented and provides reflections about the research and discusses any limitations that emerged.

CHAPTER 3

PROCEDURES

Introduction

The intention of this research was to analyze how utilization of various channels of communication relates to individuals' perceptions of the legalization of medical marijuana. The researcher investigated the extent to which communication channel utilization relates to individuals' perceptions of the credibility of information about medical marijuana as well as their willingness to share information about medical marijuana. The most appropriate means to investigate this relationship between was to distribute a quantitative survey. To obtain an adequate response rate, the survey participants consisted of the population of Indiana University of Pennsylvania in western Pennsylvania.

To obtain an appropriate cross-section of data, a random sample of students, including both under-graduate and graduate, were surveyed, as was the entire population of staff, faculty, and management of the university. One segment of the survey questions was comprised of questions seeking to understand general usage patterns of various communication channels by the target population, including frequency and duration. Additional survey questions sought to investigate reliability perceptions of communication channels in general, and more specifically, how reliable respondents felt the information was about medical marijuana on a communication channel. Demographic questions were also included in the survey to explore associations and differences between various demographic groups with respect to communication channel usage, and individuals' perceptions and attitudes about medical marijuana. Results included responses from a more diverse demographic population, and with the various communication channels researched and the array of uses for medical marijuana, this provided the most robust results.

Additionally, a proper review of the tested reliability and validity of the survey instrument was conducted prior to dissemination of the survey to the study population.

Rationale for Utilizing a Survey

This research study explored the use of various channels of communication by members of Indiana University of Pennsylvania's student, staff, faculty, and management populations. Understanding how communication channel utilization relates to various perceptions about information received via each communication channel, allowed for generalizations to be made. Having access to the entire student population of the university to select a sample; as well as the entire population of employees including staff, faculty, and management, allowed for opportunities to make comparisons among various demographics including any similarities or differences that are identified.

A researcher-designed survey was created and IRB approval was obtained. The survey questions were designed to address the five primary research questions outlined in Chapter One and restated later in this chapter. First, general demographic questions were asked. The first several questions on the survey sought to uncover various demographic qualities about the respondents to yield descriptive statistical analysis between various demographics of the respondents to uncover patterns and trends.

Following the demographic questions, the survey questions addressed utilization of various communication channels. Next, questions about credibility of communication channels were presented to the respondents. The following section of questions on the survey related to individuals' attitudes about the legalization of medical marijuana. Questions were also asked to understand how various channels of communication relate to individuals' attitudes about the effectiveness of medical marijuana to treat a variety of medical conditions. Finally, questions

explored the relationship between various channels of communication and individuals' preference of channel selection used to form an opinion about the legalization of medical marijuana.

By constructing the questions specifically to focus on the three broad categories of Uses and Gratifications theory created by Blumer (1979, p.27); normative influences, socially distributed life changes, and subjective reaction or adjustment the survey instrument produced results specifically applicable to the theoretical framework for this study. The first section of the survey addressed factors relating to normative influences. As explained in Chapter One, normative influences refers to the gratifications that individuals select based upon their social structure. Survey questions that were tailored to understanding socially imposed norms and expectations included demographic questions about sex, age, and university affiliation (staff, management, faculty, under-graduate student or graduate student).

Following the demographic questions was a series of Likert-scale questions addressing usage of communication channels in general as well as questions seeking opinions about medical marijuana as a treatment option. The survey contained additional ordinal scale data questions to determine perceived credibility of communication channels, and information related to medical marijuana found through those communication channels. These questions were developed to understand the implication of enablers and facilitators. Chapter One defines a facilitator as the tools that get people actively engaged, and an enabler serves as a useful instrument. With respect to this research, enablers and facilitators are the channels of communication including radio, newspaper, television, Facebook, Instagram, and Twitter. These questions explored the relationship between communication channel and an individual's perceptions about credibility of information from that channel. These questions also examined relationships between

communication channels and sharing of information from a channel about any topic and specifically in relation to medical marijuana.

Additional questions were administered to understand the relationship between users' perceived credibility of communication channels and perceived credibility of information from those channels pertaining to medical marijuana form those channels. Individuals' willingness to share information on communication channels and specifically information about medical marijuana on those channels were also examined. Further survey questions sought to understand how individuals assess communication channels as effective outlets for receiving information about medical marijuana. Finally, questions specifically addressed how communication channel exposure would be selected by users to form an opinion on the legality of medical marijuana.

The questions geared toward credibility of communication channels in general and credibility of medical marijuana information on these channels allowed the researcher to gauge the degree to which subjective adjustment played a factor. The questions regarding opinions on legality of medical marijuana also apply directly to the subjective adjustment individuals make to situations. Defined in Chapter One, subjective reaction or adjustment refers to the value that an individual perceives they receive from media consumption.

The survey was administered through Qualtrics. To maximize response rate, the survey was created in a way that it could be completed in less than five minutes. During the reliability testing of the survey instrument, timing was conducted to ensure that the survey could be completed in the desired time allotment. By asking straightforward questions written in a conversational tone, the respondents provided the most accurate data for the researcher to analyze.

The data was collected through Qualtrics, and the survey respondents were eligible to participate in a drawing for a $50 Wal-Mart Gift Card. The survey was distributed in September 2017, and remained open for a period of two weeks to gather data. It was created to be completed quickly, taking no more than 3 to 5 minutes. That, coupled with the subject matter, made it possible to collect a more than adequate sample.

Respondents

An email was distributed to potential respondents including an embedded link to take the Qualtrics survey. The email contained a link participants clicked to take the survey. The email provided information about the purpose of the survey, potential benefits to the participants for participating in the survey, and the name and contact information of the researcher. Once participants clicked on the hyperlink, they were re-directed to the Qualtrics survey where the first question related to informed consent. Participants were informed that completion of the survey was voluntary and they could terminate participation at any time. There were two reminder e-mails sent to potential respondents. There was a glitch with the initial reminder e-mail as the informed consent language in the body of the e-mail was missing. Due to human error, the link to the survey was the only content in the body of the e-mail. Since the required verbiage and informed consent were missing, the survey was temporarily closed. All responses received during that time frame were removed immediately from the survey data.

With this survey, there were no vulnerable subjects and essentially no risk for participation in the survey. Responses were collected through Qualtrics and no identifying information was attached to the responses, thus making them confidential. User participation was voluntary; however, everyone who received the survey invitation could register to be entered into

a drawing for a $50 Wal-Mart Gift Card. Survey completion was not a requirement for individuals to participate in the prize drawing.

Initially, the email was distributed to 2,000 current undergraduate and graduate students from a total student population of approximately 12,850 (IUP at a Glance, 2016). Additionally, the survey was sent to all university management, faculty, and staff. With approximately 1,662 total employees at Indiana University of Pennsylvania, (M. Smelko, personal communication, November 29, 2016) the number of students and employees surveyed totaled 3,662. According to a sample size calculator from Creative Research Systems (2017), a population of 14,512, comprised of 12,850 students and 1,662 university employees, requires a sample size of 374 to reach the objective of a 95% confidence level with a confidence interval of 5. To obtain this response rate the survey population consisted of a random sample of students, both undergraduate and graduate, as well as the total population of management, faculty, and staff. This provided sufficient and relevant data through which generalizations were made.

The motives for selecting the population of Indiana University of Pennsylvania were two-fold. First, the legalization of medical marijuana is recent to the Commonwealth of Pennsylvania, as of the passing of Senate Bill No. 3 (2016), making it a timely topic of discussion. Across the nation, marijuana usage has progressively increased, as has the attention that this subject has received in the media (D'Amico, 2015). Secondly, the researcher had access to the respondents and an appropriate cross-section of responses from the population were easily obtained. Additionally, access to potential respondents allowed for maximum participation in the research thus providing more robust results. By encompassing the students and the employees of Indiana University of Pennsylvania, a broader depth of knowledge was gathered among a wider demographic of participants.

Research Questions/ Hypotheses

This research focused on answering five primary research questions. To accomplish this, a series of hypotheses were analyzed to address each research question. The research questions and hypotheses were explained in Chapter One. The research questions were specifically formulated in a manner by which the data collected analyzed could later be compared to Blumler's Framework (1979) to understand whether normative influences within the Uses and Gratification Theory factored into this research. The first three research questions focused solely on assessing relationships between variables. Research Questions 4 and 5 were framed to determine any relationships that existed as and to examine differences in the variables. This assisted the researcher to understand whether the various communication channels acted as enablers and/or facilitators as discussed in Chapter Two.

Data Analysis

By conducting statistical tests on each hypotheses, the data provided the answers the researcher sought for each of the five research questions. For the first three research questions, Spearman Rho Correlation tests were conducted on each hypothesis to measure the relationships between the dependent and independent variables. To analyze Research Question 4, the difference between communication channels and perceptions of medical marijuana usage to treat serious medical conditions, were examined using a two-way ANOVA to provide the most robust data. The remaining hypotheses in Research Question 4 were tested utilizing a Spearman Rho correlation to seek associations between various variables and the perceived effectiveness of medical marijuana as a treatment option. Research Question 5 was tested using a two-way ANOVA to uncover any differences between communication channels and individuals' opinions on the legality of medical marijuana. The remaining hypotheses for research question five were

investigated using a Spearman Rho Correlation to determine any associations between communication channels and the following variables including: time, credibility, credibility of medical marijuana information, willingness to share, willingness to share medical marijuana information, and medical marijuana's perceived effectiveness as a treatment option. Descriptive statistics were used to explain the demographic findings.

Most of the questions were comprised of ordinal scale responses that were exported from Qualtrics upon closing of the survey. The dependent variables in this study were: individuals' attitudes on the legalization of medical marijuana, individuals' attitudes about the effectiveness of medical marijuana as a treatment option for serious medical conditions, and individuals' confidence about the medical validity of the information on medical marijuana. Before the survey was finalized for distribution to the potential respondents for completion, it was tested for both reliability and validity.

Reliability and Validity

As this is a researcher-designed survey instrument, ensuring proper reliability and validity was critical for this quantitative research study utilizing a survey for data collection. To validate the content of the survey instrument, face validity and jury validity were utilized. Face validity of the research is defined as the extent to which the data analysis measures what it is supposed to measure (McDowell, 2006.) Face validity was assessed initially by the dissertation committee of the researcher, consisting of three faculty members from the university being studied, asking all three members of the committee to review the survey questions, assessing them for appropriate wording, meaning, and language. Any problematic questions were omitted from the survey, and any questions that needed to be linguistically changed were re-worded.

Once the face validity was completed, then the second phase of the validation process, jury validity, ensued.

Jury validity consists of utilizing a group of experts in the field to examine the survey instrument to determine its merit (Reinard, 2006). Utilizing jury validity established a higher confidence in the validity of the survey instrument. For this portion of the validation process, five doctoral students from the Communications Media Department at Indiana University of Pennsylvania where the survey was distributed were asked to complete the survey. This group was chosen based on their expertise in the field of research, as each was a scholar who had significant experience creating quantitative survey instruments. An email was sent to the jury that explained the survey purpose and the benefit for participation in the survey. The first question on the survey was informed consent. After the survey was completed by the jury panel members, a separate survey analysis form was emailed to each jury participant (Appendix B) seeking analysis and understanding of the survey questions. Furthermore, all jury members provided written or oral feedback on the survey instrument.

The results provided from the jury validation were used to modify and improve the survey instrument. These completed surveys were not included in the overall analysis of the survey data. Additionally, members of the faculty and doctoral students who participated in improving the validity of the survey instrument through face validity or jury validity were instructed not to participate in the actual survey when it is distributed for completion.

Following the tests of face validity and jury validity, was the test to assess the instrument for reliability. Since the survey instrument being used in this study was researcher-developed, it had never been used and therefore was tested prior to final distribution. Reliability refers to the ability to obtain the same results from an experiment on repeated efforts (Carmines & Zeller,

1979). To ensure reliability of the survey instrument used, a panel of volunteers were asked to complete the survey. These volunteers consisted of a diverse group of individuals who were personally known by the researcher either professionally or personally, who all had experience conducting quantitative research and creating survey instruments. This is an appropriate group as it consists of demographics consistent with the target population. The survey was embedded into an email link and sent just as the actual survey was later distributed. The premise of the investigation along with informed consent was included in the email, and informed consent was also the first question asked on the survey instrument. One week later, the same peers were again asked to complete the same survey. Reliability testing occurred in the summer of 2017. This test-retest reliability will allow the survey instrument to be measured to determine the agreement between the two tests (McDowell, 2006). Cronbach's alpha values was calculated, allowing the researcher to assess the internal reliability of the survey instrument, striving for a value greater than .90, which is considered to be highly accurate (Swets, 1988).

Summary of the Procedures

To investigate the relationship between communication channels and individuals' perceptions of medical marijuana, credibility of medical marijuana information, and attitudes toward the usage of marijuana as a medical treatment option, a quantitative research study was conducted utilizing a survey instrument. The target population of the survey was comprised of all staff, management, and faculty of the university as well as a random sample of 2,000 students including both under-graduate and graduate level students. The survey was distributed in September of 2017.

The survey was created and sent to a selection of individuals to establish validity of the survey instrument. Once the face validity was established, jury validity solidified the questions

included in the final research survey questionnaire. The researcher relied heavily on the dissertation committee members to establish face validity of the survey instrument. Once both face validity and jury validity had been established, the survey was sent to a selection of individuals to ensure reliability of the survey instrument.

The final research survey was distributed to the target population through Qualtrics. An email was sent to potential participants that explained the purpose of the study, the benefits they would receive through the completion of this research, and a hyperlink that directed them to the survey. The name and contact information of the researcher was also included in the email. Individuals were made aware at this point that participation in the survey was voluntary and that individuals could choose not to participate at any time without any repercussions. The survey was short in nature to maximize participation.

Results of the analysis of the survey data are presented in Chapter Four. These results include a breakdown of demographic results including an assortment of comparisons. This chapter illustrates which communication channels are perceived as credible to receive information about medical marijuana, as well as which communication channels are preferred in general by participants. Further analysis describes the relationship between communication channels and individuals' attitudes about the effectiveness of using marijuana as a treatment option for serious medical conditions. Results about individuals' attitudes toward the legalization of marijuana in the Commonwealth of Pennsylvania are be discussed in this chapter.

Chapter Five individually discusses and answers the research questions by examining the results of the data. After the findings of the analysis is reported, comparisons are made between those findings and the literature discussed in Chapter Two.

CHAPTER 4

DATA ANALYSIS

This quantitative research study explored the relationship between communication channels and individuals' perceptions about credibility of information received from those channels, specifically regarding information about medical marijuana. This investigation resulted in 668 initial survey respondents. Of those volunteer responses, 71 sets of responses were removed from the data set due to incomplete data, and one set of data was removed because of lack of informed consent, leaving the final sample size at 595. The researcher used the results of these 595 responses to analyze for this research study. These included responses from 296 students and 299 employees from the university population where the study was conducted.

A researcher-designed Qualtrics survey was distributed via email to 3,566 potential respondents. This included 2,000 students from Indiana University of Pennsylvania, and 1,566 faculty, staff, and management from the same university. Data collection occurred in September 2017. The initial e-mail was delivered electronically through the Qualtrics e-mail server to all of the potential respondents on Thursday, September 8, 2017. One week later, a reminder e-mail was sent to all participants who had not yet participated at that time. Due to a mistake made in the e-mail reminder distribution, as explained in chapter three, the e-mail sent to potential respondents did not contain the required informed consent. A blank e-mail was sent to potential respondents that only contained the link to the survey. This issue was quickly identified, and the survey was temporarily closed to participants. The 88 respondents who completed the survey from that reminder link were removed from the data set by a Qualtrics administrator. This allowed the researcher to keep the integrity of the survey intact. A reminder e-mail asking for

participation was re-sent the following day and additional responses were generated. The survey was closed for responses on Friday, September 22, 2017.

This chapter is divided into three sections. The first segment of this chapter discusses the establishment of reliability and validity of the survey instrument. The second portion of the chapter explains the results of the descriptive demographic data of the sample collected. The final section of Chapter Four evaluates the descriptive and inferential statistical results of the research questions. Overall, five research questions and 23 hypotheses were examined to determine whether they were supported by the data analyzed.

Establishment of Validity

Before the survey instrument was distributed to the sample population both validity and reliability were established. The first segment of the validity check included an inspection of grammar, language, and formatting consistency of the survey instrument. This face validity inspection occurred during the spring of 2017 by the dissertation committee of the researcher. This initial inspection resulted in numerous grammatical and formatting changes to the instrument. Modifications were made based on the feedback and the instrument was reviewed and agreed upon.

Following the approval of the first phase of face validity, it was necessary to establish jury validity with the survey instrument. The survey, along with a 7-question survey validity questionnaire was sent via email to five communication media doctoral students known personally by the researcher. The validity questionnaire included questions about formatting of the survey, clarity, and consistency. The 7-point Likert scale questions were all kept the same, but question number 6, asking about time utilizing communication channels was changed based on suggestions by the volunteers. Several categories were added to allow for a more accurate

depiction of time spent on communication channels, to the final revision of the question that included 12 possible choices (See Appendix A). These additional categories eliminated too large of gaps between answer selections.

Establishment of Reliability

After the successful completion of validity of the survey instrument, reliability was tested utilizing a test-retest method performed during August 2017. Participants were selected from a convenience sample of professional colleagues including communication professors, and work associates, representing various age groups and education levels, of the researcher experienced in quantitative research methods and designs. The survey was issued to five volunteers. An email was sent to participants that included an embedded link to complete the survey questionnaire. Informed consent was included in the body of the email and was the first question on the survey. Upon completion of the survey initially, respondents were asked the length of time required to complete the survey. All of the respondents indicated that the survey took 3-5 minutes to complete.

One week after completion of the initial survey, the volunteers were sent another email with an embedded link to the survey, and asked to re-take the survey. Once the respondents completed the survey the second time, the results from both surveys were compared utilizing inter-rater reliability (Cronbach, 1947). To achieve consistency of the instrument, Cronbach's alpha (1951) was selected as the most appropriate choice since the majority of the survey questions consisted of scale data. The data was entered into SPSS statistical software package and Cronbach's alpha values were calculated, ensuring all questions met reliability standards. This method of testing inter-rater reliability measured the homogeneity in ratings by all respondents, making it an appropriate method of calculation. All of the Likert Scale questions

were analyzed for inter-rater agreement. This totaled 6 questions with 6 communication channels per section, resulting in a total of 36 answers per respondent analyzed. The overall Cronbach's alpha was over 92%, which demonstrates very strong inter-rater reliability.

Demographic Distribution

The Qualtrics survey asked respondents several questions designed to better understand the demographics of the sample. Information obtained included affiliation with the university, year of birth, gender and educational level. The original Qualtrics survey included 668 responses. After responses that were not viable were extracted from the data set, 595 responses were analyzed.

Of the respondents, the majority were females with a frequency of 400 (67.6%); frequency of male respondents was 188 (31.7%), and 4 (0.7%) participants preferred not to answer the gender identifying question as seen in Table 1. The general population of the university campus is comprised of a population of 58% females and 42% males (iup.edu, 2017), providing a possible explanation as to why this survey had more female respondents.

Table 1

Demographic Gender

Gender	**Frequency**	**Percent**
Female	400	67.6
Male	188	31.7
Preferred Not to Answer	4	0.7
Total	592	100

Respondents identified their affiliation with the university based upon five categories: under-graduate students with 227 respondents, graduate students with 69 respondents, staff with 106 respondents, faculty with 150 respondents, and management with 35 respondents. Eight

respondents chose not to answer this question (Table 2). The student responses are consistent with the demographic breakdown of the university. Indiana University of Pennsylvania has approximately five times the number of under-graduate students than it has graduate students. The results indicate that graduate students responded at a slightly higher rate than expected. Graduate students may have been more likely to participate as they have a better understanding of the importance of graduate student research. The responses from the employees of the Indiana University of Pennsylvania are also indicative of the university make up. The university has a nearly even split of faculty and staff. The employee participants have a slightly stronger representation from faculty over staff. Faculty also recognize the importance of research, possibly explaining this occurrence, or the lack of computer access from staff could also contribute to the findings. Management of the university represent the smallest portion surveyed, and the results are appropriate for this section of respondents.

Table 2

University Affiliation

University	**Affiliation Frequency**	**Percent**
Under-Graduate Student	227	38.2
Graduate Student	69	11.6
Staff	106	17.8
Faculty	150	25.2
Management	35	5.9
Missing Responses	8	1.3
Total	595	100

Faculty, staff, and management were asked to provide their level of education. Of the 299 respondents from these three groups, respondents indicated the following education levels: high

school graduate 13 (4.3%), some college 25 (8.4%), Associate's Degree, Technical School or Trade School Graduate 10 (3.3%), Bachelor's Degree 46 (15.4%), Master's Degree 62 (20.7%), and Terminal Degree (MFA, EdD, PhD) 143 (47.8%) (Table 3).

Table 3

Faculty, Staff, and Management Education Level

Education Level	**Frequency**	**Percent**
High School Graduate	13	4.3
Some College	25	8.4
Associate Degree, Technical School, or Trade School Graduate	10	3.3
Bachelor's Degree	46	15.4
Master's Degree	62	20.7
Terminal Degree (MFA, EdD, PhD)	143	47.8
Total	299	99.9

Under-graduate and graduate students were asked to identify their current student status. Two-hundred-ninety-six students completed the questionnaire and responses were distributed as follows: Freshman 85 (28.7%), Sophomore 37 (12.5%), Junior 48 (16.2%), Senior 57 (19.3%), Master's Level 39 (13.2%), and PhD Level 30 (10.1%) (Table 4).

Table 4

Student Status

Student Status	Frequency	Percent
Freshman	85	28.7
Sophomore	37	12.5
Junior	48	16.2
Senior	57	19.3
Master's Degree	39	13.2
PhD	30	10.1
Total	296	100

Respondents were asked to provide their permanent state of residence. The question listed all 50 states, and one option for outside of the United States. This data was then collapsed into two categories; Pennsylvania Resident and Non-Pennsylvania resident. Five hundred sixty-one (94.3%) respondents were residents of Pennsylvania and thirty-four respondents were Non-Pennsylvania residents (5.7%) as shown in Table 5. Anyone who lived outside of the United States was included in the Non-Pennsylvania resident category.

Table 5

Pennsylvania Versus Non-Pennsylvania Resident

Resident Status	Frequency	Percent
PA Resident	561	94.3
Non-PA Resident	34	5.7
Total	595	100

The researcher investigated relationships and compared mean estimates of respondents based on university affiliation and their perceptions of medical marijuana information by

communication channel. From these comparisons, the highest overall mean estimate 5.20 was from management of the university, with the communication platform Twitter (Table 6). The lowest mean estimate was also a result of management responses, where the average for television was 2.54. The results of Table 9 indicate that the three social media channels investigated have the highest mean estimates from PhD students, faculty, and management of the university.

Table 6

Mean Scores of Individuals' Perception of Credibility of Medical Marijuana Information by Communication Channel and University Affiliation

University Affiliation	**Television**	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Freshman	3.13	3.14	3.72	3.92	4.22	3.99
Sophomore	2.84	2.70	3.03	4.00	4.11	4.11
Junior	3.66	3.47	4.02	4.30	4.30	4.40
Senior	3.18	3.00	3.39	3.88	3.91	4.14
Master's	2.92	2.84	3.00	4.14	4.25	4.27
PhD Student	3.20	3.07	3.23	4.57	4.97	4.87
Staff	3.24	3.22	3.37	4.53	4.74	4.72
Faculty	3.42	3.08	3.36	5.02	5.26	5.14
Management	2.54	2.91	3.34	4.83	5.14	5.20

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

The following table (Table 7) examines the mean estimates based on university affiliation and how likely individuals are to share medical marijuana information from a communication channel. When reviewing these results, the two highest mean scores, both 5.66, were from faculty of the university, with respect to Instagram and Twitter. The lowest mean estimate, 3.31, were from PhD respondents, and the communication channel was radio.

Table 7

Mean Scores of Individuals' "Likeliness to Share Medical Marijuana Information" by Communication Channel and University Affiliation

University Affiliation	Television	Newspaper	Radio	Facebook	Instagram	Twitter
Freshman	3.65	3.88	4.12	4.31	4.40	4.31
Sophomore	3.68	3.51	3.76	4.17	4.35	4.19
Junior	3.87	3.81	4.19	4.13	4.40	4.53
Senior	3.77	3.81	4.16	4.39	4.75	4.54
Master's	3.70	3.65	3.97	4.24	4.50	4.43
PhD Student	3.55	3.41	3.31	4.38	4.76	4.93
Staff	3.52	3.47	3.70	4.79	5.25	5.25
Faculty	4.12	4.03	4.09	5.38	5.66	5.66
Management	3.74	3.57	3.80	5.31	5.40	5.40

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

To review the mean estimates of individuals based on university affiliation was required to analyze how the mean estimates compared when looking at how individuals utilize communication channels to gauge the effectiveness of medical marijuana (Table 8). Results of this analysis show the highest mean score was from faculty on the communication channel Instagram. The lowest mean estimate came from sophomore respondents utilizing newspaper.

Table 8

Mean Scores of Individuals' "Gauge Effectiveness of Medical Marijuana" by Communication Channel and University Affiliation

University Affiliation	**Television**	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Freshman	3.20	3.47	4.08	4.40	4.65	4.46
Sophomore	3.08	3.03	3.65	4.22	4.54	4.27
Junior	3.85	3.72	4.48	4.46	4.54	4.37
Senior	3.32	3.23	3.79	4.47	5.05	4.62
Master's	3.32	3.05	3.73	4.42	4.44	4.46
PhD Student	4.13	3.53	3.77	5.31	5.50	5.47
Staff	3.32	3.21	3.94	5.06	5.39	5.31
Faculty	4.39	3.78	4.36	5.90	6.25	6.18
Management	3.57	3.23	3.80	5.71	5.83	5.77

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

Tables 6, 7 and 8 examined normative influences based upon Uses and Gratifications theory. Education level fits into the bottom right quadrant of Blumler's (1979) differentially distributed opportunities and capacities chart as presented in Chapter Two, Figure 1. Based upon the mean estimates provided in these tables, there is support for the applicability of UGT in understanding this issue.

Descriptive and Inferential Statistics

To analyze and interpret the data for five research questions, both descriptive statistics and inferential statistics were applied. The data for each question is explained in this section.

Research Question 1

RQ1: Is there a significant relationship between the usage of communication channels and perceptions of credibility and willingness to share information?

The first research question focused on seeking to understand whether a relationship existed between communication channels and individuals' perceptions of credibility. Credibility is one of the main variables investigated throughout this research. According to Katz, Gurevitch, and Haas (1973), in a research article that discussed Uses and Gratifications theory, credibility is defined as a personal integrative need, which made it an appropriate variable for this research study. Additionally, Research Question One examined the relationship between communication channel utilization and an individual's willingness to share information. Prior research studies have surmised a positive relationship exists between communication channel usage and gratifications sought by users (Dobos, 1992; Rayburn & Palmgreen, 1984), making communication channel utilization a key variable in several hypotheses tested.

Respondents were asked how much time was spent on each of the following communication channels: television, radio, newspaper, Facebook, Instagram, and Twitter (See Appendix A, # 7). The choices for the respondents utilized the following categories with the coding for each identified in ( ): never(blank), quarterly (1), 1-2 times per month (2), 3 times per month (3), 1 time per week (4), 2-3 times per week (5), 4-6 times per week (6), 0-1 hours per day (7), 1-2 hours per day (8), 2-4 hours per day (9), 4-6 hours per day (10), and more than 6 hours per day (11). Television viewership had the highest mean (6.98), followed by Facebook (6.02), radio (5.88), Instagram (4.44), newspaper (3.64), and Twitter (3.50). (Table 9).

Table 9

Time Spent Utilizing Communication Channels

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	6.98	3.64	5.88	6.02	4.44	3.50
Median	8.00	3.00	7.00	7.00	5.00	1.00
Standard Deviation	2.382	2.581	2.689	2.853	3.376	3.256
Variance	5.675	6.664	7.229	8.142	11.396	10.602
Skewness	-1.171	0.471	-0.586	-0.742	0.166	0.771
Kurtosis	0.739	-1.228	-0.661	-0.638	-1.638	-1.036

Additionally, respondents were asked whether the following communication channels were credible: television, radio, newspaper, Facebook, Instagram, and Twitter (Appendix A, #8). Participants answered on a 7-point Likert scale from strongly disagree to strongly agree. Newspaper had the highest mean score of (5.3486), followed by radio (5.1111), television (4.9358), Instagram (3.4162), Facebook (3.3697), and Twitter (3.3575) respectively (Table 10).

Table 10

Credibility of Communication Channels

	Television	Newspaper	Radio	Facebook	Instagram	Twitter
Mean	4.9358	5.3486	5.1111	3.3697	3.4162	3.3575
Median	5.00	6.00	5.00	3.00	4.00	4.00
Standard Deviation	1.40675	1.22407	1.16438	1.58856	1.61668	1.59638
Variance	1.979	1.498	1.356	2.524	2.614	2.548
Skewness	-0.980	-1.221	-0.923	0.166	0.039	0.120
Kurtosis	0.577	2.084	1.289	-0.836	-0.848	-0.727

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

When testing the hypotheses, it was important for the researcher to obtain the most relevant and applicable data. To accomplish that goal, any questions asked on the survey instrument that contained a choice of "never" were eliminated from the data sets of hypotheses tested utilizing time as a variable. This was done to ensure that the responses were not artificially displaying higher, false correlations. Hypotheses that tested for opinions and perceptions analyzed all data provided from the participants to gather the most robust results.

First Hypothesis

H1: There is a statistically significant association between time spent utilizing a communication channel and perceived credibility of that communication channel.

To test H1, a Spearman's rank correlation coefficient (Spearman's rho) was conducted on the data. A statistically significant, positive association was found between time spent utilizing a communication channel and perceived credibility of that communication channel when respondents utilized television, Facebook, and Instagram; however, there was no statistical significance between time spent using a communication channel and perceived credibility of a

communication channel with respect to newspaper, radio, and Twitter (Table 11). Newspaper and radio had very high means and low standard deviation which suggests there is less variability on credibility which may provide an explanation for the low correlations. Results of this correlation indicate the more a communication channel is utilized, the higher the perceived credibility of that channel for those channels that had statistically significant findings. The strength of the significance for this association was strongest with the communication channel, Instagram (.180). The researcher expected a lack of a statistically significant correlation with newspaper since newspapers have been known as a credible source for information. According to Maier (2005), a public opinion poll questioning the trustworthiness of newspapers indicated 59% of respondents felt that newspaper articles could be trusted.

Table 11

Correlation Between Time Spent Utilizing a Communication Channel and Perceived Credibility of a Communication Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	550	.130**
Newspaper	382	.023
Radio	504	.080
Facebook	474	.174**
Instagram	320	.180**
Twitter	247	.092

**correlation is significant at the .01 level (2-tailed).

Next, respondents were asked to answer the statement "I am likely to share information received from this communication channel with others" (Appendix A, #9). The participants answered on a 7-point Likert scale from strongly disagree to strongly agree. The mean scores for

this question were as follows: newspaper (5.2869), television (5.2618), radio (5.1922), Facebook (4.3350), Instagram (3.8722), and Twitter (3.8475) (Table 12).

Table 12

Likeliness to Share Information

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	5.2618	5.2869	5.1922	4.3350	3.8722	3.8475
Median	6.00	6.00	6.00	5.00	4.00	4.00
Standard Deviation	1.41805	1.42530	1.37592	1.80862	1.90907	1.84776
Variance	2.011	2.031	1.893	3.271	3.645	3.414
Skewness	-1.334	-1.314	-1.101	-0.535	-0.195	-0.196
Kurtosis	1.555	1.597	1.089	-0.748	-1.066	-1.022

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

Second Hypothesis

H2: There is a statistically significant association between time spent utilizing a communication channel and willingness to share information from that channel.

When testing H2 to investigate whether there was an association between time spent utilizing a communication channel and willingness to share information, a Spearman's rho was utilized to examine the relationship. Statistical significance displays a relationship between the two variables; the more time individuals utilize a communication channel, the more willing they are to share information from that channel. The results of this analysis showed a positive, statistically significant relationship at the $p<.01$ level between time spent using a communication channel and willingness to share information when looking at each of the six communication channels, except newspaper (Table 13). The results found the three social media communication channels had the highest correlations. Facebook ranked first (.364), followed by Twitter (.261),

and Instagram (.235). The traditional media channels of television (.193), and radio (.165) had statistically significant findings, but the correlations were weaker for these channels; and there was not a statistically significant correlation between time spent utilizing a communication channel and willingness to share information from that channel when utilizing newspaper. These findings indicate that individuals are more likely to share information the longer they spend utilizing a communication channel. A possible explanation is that social media's ease of transferring data makes the correlation stronger for these channels. A second possible explanation is that utilizing the word "share" in the question may have introduced some bias given its connection to social media.

Table 13

Correlation Between Time Spent Utilizing a Communication Channel and Willingness to Share Information From That Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	552	.193**
Newspaper	382	.056
Radio	506	.165**
Facebook	474	.364**
Instagram	321	.235**
Twitter	248	.261**

**correlation is significant at the .01 level (2-tailed).

Third Hypothesis

H3: There is a statistically significant association between perceived credibility of information from a communication channel and willingness to share information from that channel.

A Spearman's rho examined the relationship between the perceived credibility of information from a communication channel and willingness to share information from that channel. Results indicated a positive, statistically significant relationship at the $p<.01$ level between perceived credibility of information and willingness to share information from a communication channel when examining each of the six communication channels (Table 14). All

six communication channels' findings indicate a very strong correlation between these two variables, with the strongest correlation being Instagram (.649), and the weakest correlation, newspaper (.559). Statistical significance for this hypothesis shows a positive relationship between credibility of a communication channel and willingness to share information from that channel.

Table 14

Correlation Between Perceived Credibility of Information and Willingness to Share Information From a Communication Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	589	.568**
Newspaper	584	.559**
Radio	580	.560**
Facebook	580	.555**
Instagram	573	.649**
Twitter	572	.619**

**correlation is significant at the .01 level (2-tailed).

Research Question One sought to investigate the relationship between communication channel utilization and individuals' perceptions of credibility and willingness to share information from those channels. It investigated this by addressing 3 hypotheses with 6 communication channels per hypothesis. Of 18 possible associations, 14 resulted in positive, statistically significant associations. With this partial support for Research Question One, the research moves forward to Research Question Two.

Research Question 2

RQ2: Is there a significant relationship between the usage of communication channels and perceptions of the credibility of medical marijuana information?

Research Question Two explored the relationship between the usage of communication channels and individual's perceptions of the credibility of medical marijuana information from the various communication channels. This research question directly related to the Uses and Gratifications theory, since credibility, as mentioned in RQ1 is a personal integrative need. Credibility of health care information in relation to communication channel usage has been examined utilizing Uses and Gratifications theory as the theoretical framework in previous research (Chung & Kim, 2008; Rains, 2007). Question 10 (Appendix A) on the survey asked respondents to indicate their level of agreement to the statement "Information about medical marijuana is credible on each of the following communication channels": newspaper (4.9107), television (4.7581), radio (4.5828), Facebook (3.5707), Instagram (3.4178) and Twitter (3.3292) (Table 15).

Table 15

Information About Medical Marijuana Credibility by Communication Channel

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	4.7581	4.9107	4.5828	3.5707	3.4178	3.3292
Median	5.00	5.00	5.00	4.00	4.00	4.00
Standard Deviation	1.41038	1.32976	1.33572	1.52022	1.53028	1.51837
Variance	1.989	1.768	1.784	2.311	2.342	2.305
Skewness	-0.821	-0.880	-0.723	-0.203	-0.178	-0.125
Kurtosis	0.593	0.984	0.673	-0.622	-0.653	-0.666

*Data based on Likert scale, 1 strongly disagree to 7 strongly agree

Fourth Hypothesis

H4: There is a statistically significant association between time spent utilizing a communication channel and perception of credibility of medical marijuana information from that channel.

To ascertain the association between time spent on a communication channel and perception of credibility of medical marijuana information from that channel, a Spearman's rho was conducted on H4. Results of the Spearman's rho establish a positive, statistically significant relationship at the $p<.01$ level between time spent on a communication channel and perception of credibility of medical marijuana information from that channel. The findings were significant for four of the six communication channels, Facebook, Instagram, Twitter, and television, suggesting a clear relationship between time spent on those channels and perceptions of credibility of medical marijuana information. Facebook (.197) had the highest correlation, and there was no statistically significant association with newspaper and radio (Table 16). According to a study by De Choudhury, Morris, and White (2014), research indicated that individuals surveyed had a high level of confidence in information obtained through online channels, which may contribute to the explanation of the results of this hypothesis. The three traditional communication channels had either weak or no statistically significant correlation suggesting that these types of communication channels might be perceived as less amenable for a topic such as medical marijuana than the three social media channels studied in this research.

Table 16

Correlation Between Time Spent Utilizing a Communication Channel and Perception of Credibility of Medical Marijuana Information From That Channel

Communication channel	N	Spearman's rho Correlation Coefficient
Television	546	.097*
Newspaper	375	.057
Radio	495	.036
Facebook	466	.197**
Instagram	317	.196**
Twitter	245	.137*

**correlation is significant at the .01 level (2-tailed), *correlation is significant at the .05 level (2-tailed).

Fifth Hypothesis

H5: There is a statistically significant association between perceived credibility from a communication channel and perceived credibility of medical marijuana information from that channel.

To test the association between perceived credibility of a communication channel and perceived credibility of medical marijuana information from that channel, a Spearman's rho test was conducted on H05. Findings indicate a strong, positive, statistically significant relationship at the $p<.01$ level between these two variables for all six communication channels examined. A statistically significant relationship for this hypothesis proposes a positive relationship between credibility of a communication channel and credibility of medical marijuana is from that channel. The Spearman's rho correlation coefficient was the highest for television (.583) and the lowest for radio (.494) (Table 17).

Table 17

Correlation Between Perceived Credibility of a Communication Channel and Perceived Credibility of Medical Marijuana Information From That Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	584	.583**
Newspaper	576	.539**
Radio	571	.494**
Facebook	573	.577**
Instagram	564	.556**
Twitter	565	.564**

**correlation is significant at the .01 level (2-tailed).

Sixth Hypothesis

H6: There is a statistically significant association between willingness to share information from a communication channel and perceived credibility of medical marijuana information from that channel.

Results from the Spearman's rho indicate there is a positive, statistically significant relationship at the $p<.01$ level between willingness to share information and perceived credibility of medical marijuana information from a communication channel with all six communication channels evaluated. These results conclude there is a positive relationship between how willing an individual is to share information from a communication channel and their perception of credibility of medical marijuana information from that channel. All six communication channels had strong correlations, with Instagram (.561) having the highest correlation, and radio (.430) resulting in the lowest correlation, although all six correlations were very strong (Table 18).

Table 18

Correlation Between Willingness to Share Information from a Communication Channel and Perceived Credibility of Medical Marijuana Information From That Channel

Communication channel	N	Spearman's rho Correlation Coefficient
Television	584	.519**
Newspaper	578	.480**
Radio	575	.430**
Facebook	572	.508**
Instagram	565	.561**
Twitter	564	.533**

**correlation is significant at the .01 level (2-tailed).

Research Question Two explored the relationship between communication channel utilization and individuals' perceptions of credibility of medical marijuana information from those communication channels. Research Question Two examined hypotheses four through six. There were 18 possible associations within these hypotheses, and 16 of those positive associations were accepted. Based on these findings, research question two is largely supported. Next, the research will examine Research Question Three.

Research Question 3

RQ3: Is there a significant relationship between the usage of communication channels and willingness to share medical marijuana information received from a channel?

Research Question Three examines the relationship between the usage of communication channels and an individual's willingness to share medical marijuana information received from a communication channel. Previous research indicates that an individual is willing to share information from a communication channel if they perceive that information is useful to the general public (Ardichvilli, Page, & Wentling, 2003). The variable willingness to share is a

normative influence. Bendapudi, Singh, and Bendapudi (1996) describe normative influences as identifying with those with helping and sharing behaviors of individuals, making it appropriate for the theoretical basis of this research. Using a 7-point Likert scale, from strongly disagree to strongly agree, respondents identified with the following statement: "I'm likely to share information about medical marijuana from this channel." Newspaper had the highest mean (4.2470), followed by television (4.2191), radio (4.0464), Facebook (3.2867), Instagram (3.0471), and Twitter with the lowest mean (2.9842) (Table 19).

Table 19

Likeliness to Share Information About Medical Marijuana From This Channel

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	4.2192	4.2470	4.0464	3.2867	3.0471	2.9842
Median	5.00	5.00	4.00	4.00	3.00	3.00
Standard Deviation	1.841	1.83627	1.78237	1.79118	1.71874	1.67377
Variance	3.389	3.372	3.177	3.208	2.954	2.802
Skewness	-0.447	-0.479	-0.376	0.133	0.271	0.291
Kurtosis	-0.955	-0.917	-0.969	-1.153	-1.012	-0.953

*Data based off of Likert scale, 1 strongly disagree to 7 strongly agree

Seventh Hypothesis

H7: There is a statistically significant association between time spent utilizing a communication channel and willingness to share medical marijuana information from that channel.

Findings of the Spearman's rho show a positive, statistically significant relationship at the $p<.01$ level for four of the communication channels: Facebook (.143), Instagram (.187), Twitter (.201) and television (.131). Results of the correlation for the remaining two communication channels, newspaper (.015) and radio (.052) indicate no statistically significant

relationship (Table 20). This indicates that for individuals utilizing the social media channels Instagram, Facebook, and Twitter, time spent utilizing the channel positively relates to their willingness to share information about medical marijuana, as does the traditional media channel, television. The time spent reading the newspaper or listening to the radio does not significantly influence individuals' willingness to share medical marijuana information from those two channels. These results could suggest that newspaper and radio are deemed credible and spending more time on those channels does not relate to the perceived credibility of those channels. Previous research on newspaper credibility shows a positive association between newspaper usage and credibility (Johnson & Kaye, 2014). Although the findings were not significant for newspaper or radio, the associations were in the expected direction.

Table 20

Correlation Between Time Spent Utilizing a Communication Channel and Willingness to Share Medical Marijuana Information From That Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	545	.131**
Newspaper	377	.015
Radio	500	.052
Facebook	466	.143**
Instagram	316	.187**
Twitter	245	.201**

**correlation is significant at the .01 level (2-tailed).

Eighth Hypothesis

H8: There is a statistically significant association between perceived credibility from a communication channel and willingness to share medical marijuana information from that channel.

Spearman's rho findings indicate a positive, statistically significant relationship at the p<.01 level for all six communication channels investigated, signifying that a positive relationship exists between credibility of communication channel and willingness to share information about medical marijuana. The correlations for all six channels were strong, with the strongest correlation occurring with Instagram (.452), followed by television (.391), Twitter (.372), Facebook (.365), radio (.301) and newspaper (.296) respectively (Table 21).

Table 21

Correlation Between Perceived Credibility of a Communication Channel and Willingness to Share Medical Marijuana Information From That Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	581	.391**
Newspaper	578	.296**
Radio	573	.301**
Facebook	573	.365**
Instagram	565	.452**
Twitter	564	.372**

**correlation is significant at the .01 level (2-tailed).

Ninth Hypothesis

H9: There is a statistically significant association between sharing information in general from a communication channel and willingness to share medical marijuana information from that channel.

The results of the Spearman's rho indicated a positive, statistically significant relationship at the p<.01 level for all six communication channels researched. Statistical significance suggests that there is a positive association between how willing individuals are to share information from a communication channel and their willingness to share information

about medical marijuana. With all six communication channels, a strong, close, positive correlation existed between these two variables, ranging from .413 to .592 (Table 22). Instagram experienced the strongest correlation (.592) and radio exhibited the weakest (.413). The strong, close correlations that existed between these two variables may indicate that if individuals are willing to share information, they are willing to share it about medical marijuana.

Table 22

Correlation Between Sharing Information From a Communication Channel and Willingness to Share Medical Marijuana Information From a Communication Channel

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	582	.500**
Newspaper	579	.461**
Radio	577	.413**
Facebook	572	.476**
Instagram	566	.592**
Twitter	563	.546**

**correlation is significant at the .01 level (2-tailed).

Tenth Hypothesis

H10: There is a statistically significant association between perceived credibility of medical marijuana information from a communication channel and willingness to share medical marijuana information from that channel.

A Spearman's rho test was conducted on the data. Results indicate a positive, statistically significant association exists between these two variables at the $p<.01$ level for all six communication channels investigated, demonstrating a positive relationship between level of perception of the credibility of information from a communication channel and willingness to share medical marijuana information from that channel. The correlations for all six

communication channels were strong, with the strongest channel being Instagram (.605), followed by Twitter (.596), television (.558), Facebook (.556), radio (.513), and newspaper (.497) respectively (Table 23).

Table 23

Correlation Between Perceived Credibility of Medical Marijuana Information From a Communication Channel and Willingness to Share Medical Marijuana Information From That Channel

Communication channel	N	Spearman's rho Correlation Coefficient
Television	582	.558**
Newspaper	578	.497**
Radio	575	.513**
Facebook	573	.556**
Instagram	566	.605**
Twitter	565	.596**

**correlation is significant at the .01 level (2-tailed).

Research Question Three examined the relationship between the utilization of communication channels and individuals' willingness to share medical marijuana information from those channels. Research Question Three examined 24 possible associations. Results of the hypotheses testing indicated that 22 of the 24 possible associations tested in H7 – H10 were accepted. Research Question Three is strongly supported, based on the testing of the previous hypotheses, allowing the research to progress to Research Question Four.

Research Question 4

RQ4: Is there a significant relationship between usage of different communication channels and individuals' perceptions on the effectiveness of medical marijuana as a treatment option?

Research Question Four sought to uncover the relationship between communication channel utilization and an individual's perception about the effectiveness of medical marijuana as a treatment option. This research question was designed to investigate the cognitive aspect of the Uses and Gratifications theory, which states that one of the five categories of needs is the

cognitive need which provides knowledge to users (Katz, Gurevitch, and Haas, 1973). To understand which communication channels individuals were likely to use to seek information about the effectiveness of medical marijuana, survey question 11 (Appendix A) stated: "To gauge the effectiveness of medical marijuana I would turn to this communication channel." Respondents used a 7-Point Likert scale from strongly disagree to strongly agree. Mean scores again resulted with newspaper having the highest mean (4.5667), television (4.3488), radio (3.9616), Facebook (2.9843), Instagram (2.8272), and Twitter (2.6972) (Table 24). This research should prove useful to health care professionals as previous research indicates that many health care providers are distributing information through social media channels (Bock, 2012).

Table 24

To Gauge the Effectiveness of Medical Marijuana

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	4.3488	4.5667	3.9616	2.9843	2.8272	2.6972
Median	5.00	5.00	4.00	3.00	2.00	2.00
Standard Deviation	1.90668	1.84545	1.76661	1.72236	1.71723	1.64049
Variance	3.635	3.406	3.121	2.967	2.949	2.691
Skewness	-0.484	-0.662	-0.258	0.393	0.505	0.577
Kurtosis	-1.046	-0.738	-1.015	-0.929	-0.831	-0.702

*Data based off of Likert scale, 1 strongly disagree to 7 strongly agree

Eleventh Hypothesis

H11: There is a statistically significant difference between communication channel utilization and individuals' perceptions of information about medical marijuana's effectiveness.

Table 25 shows the overall pattern between communication channel utilization and individuals' perceptions of information about medical marijuana's effectiveness. This table displays the mean score for each combination of media type and time spent. A Levene's test was

conducted to ensure the homogeneity of variances was met. Since this was the case, a two-way ANOVA was conducted on the data to assess factorial analysis (Table 26). The factorial analysis indicates that a statistically significant difference between communication channel and perceptions of information about medical marijuana's effectiveness. There are also statistically significant differences between communication channel utilization and perceptions of information about medical marijuana's effectiveness. However, when analyzing the variables together, there is no statistically significant difference. These findings indicate that there is an overall difference by channel in effectiveness and by utilization rates in effectiveness. When the two variables are combined, the findings are not significant.

Table 25

Perceptions of Information About Medical Marijuana's Effectiveness by Communication Channel and Utilization

Times		Television	Newspaper	Radio	Facebook	Instagram	Twitter
Never	Mean	3.78	-	-	-	-	-
	SD	2.140	-	-	-	-	-
	N	36	-	-	-	-	-
Quarterly	Mean	3.64	4.73	3.88	3.20	3.00	3.00
	SD	2.341	1.991	1.943	1.619	2.121	1.749
	N	14	51	25	10	5	18
1-2 times per month	Mean	3.94	4.49	3.68	1.92	2.71	1.53
	SD	1.819	1.914	1.701	1.379	1.380	.834
	N	17	86	28	12	7	15
3 times per month	Mean	3.42	5.14	3.90	3.00	2.55	3.00
	SD	2.275	1.481	1.729	2.098	1.968	1.155
	N	12	29	21	6	11	7
1 time per week	Mean	4.27	4.63	3.90	2.39	2.67	3.00
	SD	2.089	1.629	1.749	1.340	1.623	1.813
	N	26	35	30	23	21	15
2-3 times per week	Mean	4.50	5.09	4.11	3.14	2.71	3.35
	SD	1.858	1.583	1.701	1.684	1.459	1.843
	N	66	34	84	57	24	20
0-1 hour per day	Mean	4.20	4.71	3.96	3.11	3.40	3.40
	SD	1.898	1.721	1.807	1.623	1.631	1.631
	N	94	102	139	168	111	73
1-2 hours per day	Mean	4.37	4.97	4.28	3.23	3.30	3.24
	SD	1.831	1.760	1.646	1.728	1.842	1.574
	N	155	31	96	100	69	42
2-4 hours per day	Mean	4.65	3.50	3.92	3.60	3.78	3.39
	SD	1.811	3.536	1.945	1.832	1.768	1.542
	N	125	2	49	55	41	31
4-6 hours per day	Mean	4.54	4.00	3.73	4.57	5.00	4.33
	SD	1.835	4.243	1.489	1.647	1.495	2.015
	N	28	2	11	23	18	12
>6 hours per day	Mean	5.71	7.00	4.30	4.11	3.43	3.36
	SD	1.799	-	1.703	2.147	2.070	1.629
	N	7	1	10	9	7	11
Total	Mean	4.35	4.74	4.02	3.22	3.37	3.23
	SD	1.906	1.790	1.752	1.725	1.759	1.672
	N	580	373	493	463	314	244

Note: Levine's = 1.516 (df = 60), p.007

Table 26

Factorial Analysis of Opinions of Information About Medical Marijuana's Effectiveness by Communication Channel and Utilization

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1144.647a.	60	19.077	6.135	.000	.133
Intercept	10148.264	1	10148.264	3263.761	.000	.576
Communication Channel	267.779	5	53.556	17.224	.000	.035
Time Utilized	117.993	10	11.799	3.795	.000	.016
Communication Channel * Time Utilization	162.465	45	3.610	1.161	.216	.021
Error	7481.162	2406	3.109			
Total	46053.000	2467				
Corrected Total	8625.809	2466				

Note: R Squared = .133 (Adjusted R Squared = .111)

Twelfth Hypothesis

H12: There is a statistically significant association between time spent utilizing a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

To test H12, a Spearman's rho was conducted to see whether there was a relationship between time spent utilizing a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel. The three social media communication channels examined had the strongest correlations with Instagram (.226) having the strongest correlation, followed by Facebook (.194) and Twitter (.184), which are all significant at the $p<.01$ level. The results of the association between these variables with traditional communication channels were weaker. Television (.103) had a significant correlation at the $p<.05$ level; and radio and newspaper lacked statistically significant correlations (Table 27). These results demonstrate there is a positive association between the two variables for all

three social media channels, and television, but there is not an association between the two variables with respect to radio and newspaper utilization.

Table 27

Correlations Between Time Spent Utilizing a Communication Channel and Individuals' Perceptions of Information About Medical Marijuana's Effectiveness

Communication channel	N	Spearman's rho Correlation Coefficient
Television	544	.103*
Newspaper	373	.021
Radio	493	.051
Facebook	463	.194**
Instagram	314	.226**
Twitter	244	.181**

**correlation is significant at the .01 level (2-tailed), *correlation is significant at the .05 level (2-tailed).

Thirteenth Hypothesis

H13: There is a statistically significant association between perceived credibility from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

Findings indicate that there is a positive, statistically significant association between these two variables for all six communication channels at the $p<.01$ level, signifying a positive association exists between perceived credibility of a communication channel and perceptions of information about medical marijuana's effectiveness. Instagram had the strongest correlation (.477) and radio (.332) had the weakest correlation (Table 28). The correlations of all six channels researched had close correlations.

Table 28

Correlation Between Perceived Credibility of a Communication Channel and Individuals' Perceptions of Information About Medical Marijuana's Effectiveness

Communication channel	N	Spearman's rho Correlation Coefficient
Television	579	.411**
Newspaper	573	.417**
Radio	566	.332**
Facebook	566	.460**
Instagram	558	.477**
Twitter	561	.466**

**correlation is significant at the .01 level (2-tailed).

Fourteenth Hypothesis

H14: There is a statistically significant association between willingness to share information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

To test H14, a Spearman's rho was used to examine the relationship between willingness to share information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness, and all six communication channels had positive, statistically significant correlations at the $p<.01$ level. Results imply there is a positive relationship between willingness to share information from a communication channel and perceptions of information about marijuana's effectiveness for all six channels studied. All of the communication channels researched had strong correlations, with Instagram (.574) having the strongest correlation and radio (.392) having the weakest correlation (Table 29).

Table 29

Correlation Between Willingness to Share Information From a Communication Channel and Individuals' Perceptions of Information About Medical Marijuana's Effectiveness

Communication channel	N	Spearman's rho Correlation Coefficient
Television	580	.454**
Newspaper	573	.452**
Radio	568	.392**
Facebook	566	.461**
Instagram	560	.574**
Twitter	561	.502**

**correlation is significant at the .01 level (2-tailed).

Fifteenth Hypothesis

H15: There is a statistically significant association between perceived credibility of information about medical marijuana from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

A Spearman's rho was utilized to examine the association between perceived credibility of information about medical marijuana from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness. Results of the Spearman's rho indicate a positive, statistically significant relationship between these two variables at the $p<.01$ level with all six communication channels investigated in this study. All of the correlations were very strong, with Twitter (.604), Instagram (.598), television (.589), Facebook (.560), radio (.530), and newspaper (.521) respectively (Table 30). This positive association indicates the more credible medical marijuana from a channel is perceived to be, the more likely that channel will be utilized to investigate the effectiveness of medical marijuana as a treatment option. Stephens (2011) explains that health care providers need to research content on social media to provide the right information needed for individuals. The more credible the information, the

more likely individuals are to be favorable towards the effectiveness of medical marijuana as a treatment option.

Table 30

Correlation Between Perceived Credibility of Information About Medical Marijuana From a Communication Channel and Individuals' Perceptions of Information About Medical Marijuana's Effectiveness

Communication channel	N	Spearman's rho Correlation Coefficient
Television	581	.589**
Newspaper	573	.521**
Radio	567	.530**
Facebook	568	.560**
Instagram	560	.598**
Twitter	563	.604**

**correlation is significant at the .01 level (2-tailed).

Sixteenth Hypothesis

H16: There is a statistically significant association between willingness to share medical marijuana information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness from that channel.

Utilizing a Spearman's rho, all six communication channels investigated had strong, positive, statistically significant results at the $p<.01$ level, indicating a positive association between willingness to share medical marijuana information on a communication channel and perceptions of information about medical marijuana's effectiveness. Instagram (.676) had the strongest correlation, and newspaper had the weakest correlation (.506) which is still a very strong correlation (Table 31). The three social media channels investigated had the strongest correlations in this hypothesis which, according to Whiting & Williams (2013), is because

individuals use social media sites to self-educate themselves, utilizing a Uses and Gratifications approach.

Table 31

Correlation Between Willingness to Share Medical Marijuana Information on a Communication Channel and Individuals' Perceptions of Information About Medical Marijuana's Effectiveness

Communication channel	N	Spearman's rho Correlation Coefficient
Television	579	.567**
Newspaper	575	.506**
Radio	569	.512**
Facebook	567	.614**
Instagram	562	.676**
Twitter	564	.633**

**correlation is significant at the .01 level (2-tailed).

Research Question Four sought to investigate the relationship between utilization of communication channels and individuals' perceptions of effectiveness of medical marijuana as a treatment option. Research Question Four tested six hypotheses with six communication channels per hypothesis, which allowed for 36 possible instances of statistical significance. Thirty-four of the 36 total possibilities resulted in statistical significance, thus, largely supporting Research Question Four and continuing the investigation of this research with Research Question Five.

Research Question 5

RQ5: Does communication channel usage help individuals form an opinion on the legalization of medical marijuana?

Research Question Five focused on seeking to understand whether communication channels usage assists individuals in forming an opinion on the legalization of medical marijuana. This research question was designed to investigate the cognitive category of needs of individuals, as discussed in RQ4. When asked which communication channel individuals would

utilize to form an opinion on the legalization of medical marijuana (Appendix A, #13), respondents answered on a 7-point Likert scale, from strongly disagree to strongly agree, resulting in the following mean values: newspaper (4.6506), television (4.4298), radio (4.0294), Facebook (3.0815), Instagram (2.8811), and Twitter (2.6977) (Table 32).

Table 32

Communication Channel Used to Form Opinion About Legalization of Medical Marijuana

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
Mean	4.4298	4.6506	4.0294	3.0815	2.8811	2.6977
Median	5.00	5.00	4.00	3.00	3.00	2.00
Standard Deviation	1.87661	1.86532	1.81773	1.76343	1.75661	1.64980
Variance	3.522	3.479	3.304	3.110	3.086	2.722
Skewness	-0.553	-0.730	-0.299	0.312	0.491	0.577
Kurtosis	-0.892	-0.615	-1.065	-1.009	-0.794	-0.667

*Data based off of Likert scale, 1 strongly disagree to 7 strongly agree

Seventeenth Hypothesis

H17: There is a statistically significant difference between communication channels and individuals' opinions on the legalization of medical marijuana.

Table 33 represents the mean score on opinion about the legalization of medical marijuana for each combination of media type and time spent.

Table 33

Mean Score – Opinion About the Legalization of Medical Marijuana for Each Combination of Media Type and Time Spent

Times		Television	Newspaper	Radio	Facebook	Instagram	Twitter
Never	Mean	3.64	-	-	-	-	-
	SD	2.153	-	-	-	-	-
	N	36	-	-	-	-	-
Quarterly	Mean	4.00	4.96	4.24	2.50	3.20	2.83
	SD	2.148	1.777	1.985	1.650	2.490	1.654
	N	14	51	25	10	5	18
1-2 times per month	Mean	4.12	4.56	3.64	1.83	3.00	2.13
	SD	1.867	2.038	1.768	1.337	1.414	1.598
	N	17	86	28	12	7	15
3 times per month	Mean	2.92	5.48	3.81	2.57	2.55	3.25
	SD	1.881	1.299	1.834	1.512	1.864	1.581
	N	12	29	21	7	11	8
1 time per week	Mean	4.30	4.89	3.88	2.74	2.52	3.33
	SD	1.836	1.652	1.862	1.421	1.662	1.839
	N	27	36	32	23	21	15
2-3 times per week	Mean	4.36	5.00	4.37	3.12	2.88	3.47
	SD	1.982	1.609	1.680	1.687	1.616	1.806
	N	66	35	83	58	25	19
0-1 hour per day	Mean	4.45	4.79	4.13	3.22	3.29	3.30
	SD	1.800	1.691	1.873	1.657	1.631	1.559
	N	94	102	140	169	111	74
1-2 hours per day	Mean	4.50	5.16	4.25	3.49	3.45	2.95
	SD	1.828	1.668	1.701	1.812	1.843	1.637
	N	155	32	95	100	69	42
2-4 hours per day	Mean	4.74	4.00	3.92	3.65	4.12	3.42
	SD	1.707	4.243	1.927	1.756	1.679	1.455
	N	126	2	51	55	43	31
4-6 hours per day	Mean	4.82	4.00	4.27	4.68	4.94	4.42
	SD	1.945	4.243	1.348	1.756	1.662	2.109
	N	28	2	11	55	18	12
>6 hours per day	Mean	4.86	7.00	3.80	5.11	4.57	3.18
	SD	2.410	-	1.874	1.453	1.813	1.940
	N	7	1	10	9	7	11
Total	Mean	4.43	4.87	4.12	3.34	3.44	3.21
	SD	1.879	1.777	1.799	1.753	1.784	1.678
	N	582	376	496	465	317	245

Note: Levine's = 1.452 (df 60), p=.014

As seen in Table 34, the Levene's test for homogeneity was not significant, thus allowing for a two-way ANOVA with standard F value to be utilized for analysis.

Table 34

Factorial Analysis of Opinions of Legalization of Medical Marijuana by Communication Channel and Utilization

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1256.420a.	60	20.940	6.711	.000	.143
Intercept	10698.523	1	10698.523	3428.801	.000	.586
Communication Channel	246.568	5	49.314	15.805	.000	.032
Time Utilized	121.260	10	12.126	3.886	.000	.016
Communication Channel * Time Utilization	191.652	45	4.259	1.365	.054	.025
Error	7550.869	2420	3.120			
Total	48168.000	2481				
Corrected Total	8807.289	2480				

Note: R Squared = .143 (Adjusted R Squared = .121)

The factorial analysis indicates a statistically significant difference between communication channel and opinions on the legalization of medical marijuana. A statistically significant difference is also apparent between communication channel utilization and opinions on the legalization of medical marijuana. No statistically significant differences were apparent when the two variables of communication channel and communication channel utilization are combined, indicating the impact of the two are independent of each other.

Eighteenth Hypothesis

H18: There is a statistically significant association between time spent utilizing a communication channel and individuals' opinions on the legalization of medical marijuana.

When testing H18, a Spearman's rho was utilized to determine whether a significant association existed between time spent utilizing a communication channel and individuals' opinions on the legalization of medical marijuana. Findings ascertain that three of the six communication channels, Instagram (.300), Facebook (.244), and television (.129) had positive,

statistically significant correlations at the p<.01 level. The remaining three channels, newspaper, radio, and Twitter did not have statistically significant results (Table 35). This indicates there is a positive relationship between these two variables with the communication channels of Instagram, Facebook, and television; but, no relationship exists between these two variables with the other three communication channels.

Table 35

Correlation Between Time Spent Utilizing a Communication Channel and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	546	.129**
Newspaper	376	.011
Radio	496	.017
Facebook	465	.244**
Instagram	317	.300**
Twitter	245	.119

**correlation is significant at the .01 level (2-tailed).

Nineteenth Hypothesis

H19: There is a statistically significant association between perceived credibility from a communication channel and individuals' opinions on the legalization of medical marijuana.

A Spearman's rho was utilized to examine the association between perceived credibility of a communication channel and individuals' opinions on the legalization of medical marijuana. All six channels researched displayed positive, statistically significant correlations at the p<.01 level (Table 36). The statistical significance is strongest with Instagram (.503) and weakest with (.356), suggesting overall that the six channels have close correlations, denoting there is a positive relationship between the two variables with all six channels examined.

Table 36

Correlation Between Perceived Credibility of a Communication Channel and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	N	Spearman's rho Correlation Coefficient
Television	581	.437**
Newspaper	577	.410**
Radio	569	.356**
Facebook	570	.480**
Instagram	563	.503**
Twitter	562	.484**

**correlation is significant at the .01 level (2-tailed).

Twentieth Hypothesis

H20: There is a statistically significant association between willingness to share information from a communication channel and individuals' opinions on the legalization of medical marijuana.

To understand the association between willingness to share information from a communication channel and individuals' opinions on the legalization of medical marijuana, a Spearman's rho test was conducted on the data. Results of the test show a positive, statistically significant association exists between these two variables for all six of the communication channels tested at the $p<.01$ level. Instagram (.546) had the strongest correlation, followed by Twitter (.509), Facebook (.473), television (.455), newspaper (.436), and radio (.368), respectively (Table 37). Positive statistical significance indicates that a relationship exists between individuals' willingness to share information from a communication channel and individuals' opinions on the legalization of medical marijuana.

Table 37

Correlation Between Willingness to Share Information From a Communication Channel and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	N	Spearman's rho Correlation Coefficient
Television	582	.455**
Newspaper	577	.436**
Radio	573	.368**
Facebook	569	.473**
Instagram	564	.546**
Twitter	569	.509**

**correlation is significant at the .01 level (2-tailed).

Twenty-First Hypothesis

H21: There is a statistically significant association between perceived credibility of medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana.

A Spearman's rho was used to determine the correlation between perceived credibility of medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana. Findings of the Spearman's rho indicate very close strong, positive associations with all six communication channels examined, showing a positive relationship exists between the two variables studied. The strongest association was with Instagram (.604), and the weakest was with newspaper (.492) (Table 38).

Table 38

Correlation Between Perceived Credibility of Medical Marijuana Information From a Communication Channel and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	N	Spearman's rho Correlation Coefficient
Television	583	.557**
Newspaper	577	.492**
Radio	572	.515**
Facebook	572	.566**
Instagram	565	.604**
Twitter	563	.594**

**correlation is significant at the .01 level (2-tailed).

Twenty-Second Hypothesis

H22: There is a statistically significant association between willingness to share medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana.

Spearman's rho results displayed a strong, positive correlation exists in all six of the communication channels. These results signify a strong association between willingness to share medical marijuana information on a communication channel and individuals' opinions on the legalization of medical marijuana. Instagram (.594) had the highest correlation, followed by Twitter (.578), Facebook (.573), television (.486), radio (.444), and newspaper (.433), (Table 39). The three social media channels had stronger correlations than the three traditional communication channels tested. It appears consistently throughout this research, the ease of sharing information influences correlations, resulting in higher correlations with the channels through which individuals can quickly and easily share information.

Table 39

Correlation Between Willingness to Share Medical Marijuana Information on a Communication Channel and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	581	.486**
Newspaper	579	.433**
Radio	574	.444**
Facebook	571	.573**
Instagram	567	.594**
Twitter	565	.578**

**correlation is significant at the .01 level (2-tailed).

Twenty-Third Hypothesis

H23: There is a statistically significant association between opinions of marijuana as a treatment option from a communication channel and individuals' opinions on the legalization of medical marijuana.

To ascertain whether an association existed between opinions about marijuana as a treatment option and individuals' opinions on the legalization of medical marijuana, a Spearman's rho was utilized. Correlations indicate that a positive, statistically significant relationship at the $p<.01$ level exists in all six of the communication channels researched (Table 40). The correlations for these variables were the strongest correlations of all hypotheses tested in this study. This suggests that there is a strong, positive relationship between opinions of medical marijuana as a viable treatment option and its legalization.

Table 40

Correlation Between Opinions on Marijuana as a Treatment Option and Individuals' Opinions on the Legalization of Medical Marijuana

Communication channel	**N**	**Spearman's rho Correlation Coefficient**
Television	582	.777**
Newspaper	576	.731**
Radio	571	.738**
Facebook	570	.778**
Instagram	565	.824**
Twitter	564	.810**

**correlation is significant at the .01 level (2-tailed).

Research Question Five sought to uncover the relationship between communication channels and individuals' opinions of legalization of medical marijuana. This research question evaluated seven hypotheses. With the evaluation of six communication channels, 42 possible statistically significant findings could have occurred. After each hypothesis was tested, 39 of the 42 produced statistically significant results. Based on these findings, RQ5 is strongly supported.

Table 41 summarizes the study's findings for each of the 23 hypotheses. A review of each hypothesis and each communication channel within each hypothesis, strongly confirm the acceptance of each hypothesis. Of the 21 hypotheses testing for associations, there were six communication channels within each hypothesis (126 total), and the hypothesis was rejected in 12 instances. Even though these 12 associations were not significant, the results were still in the predicted direction. Six of those 12 rejected hypotheses involved responses related to newspaper, five were related to radio, and one instance was related to Twitter. Overall, these results support the theoretical framework for this research. Uses and gratifications were measured looking at credibility, willingness to share, gauging the effectiveness of medical marijuana, and forming an

opinion on the legalization of medical marijuana. These results indicate that users are satisfied with the media they are using for the purposes intended in this study, thus supporting UGT.

The summary of hypotheses table, Table 41, examines Research Question One and the three related hypotheses, seeking information related to the independent variable, credibility from a communication channel. Of the six communication channels investigated, Hypothesis One was accepted for three channels and rejected for the other three. Hypothesis Two was accepted for five of six channels, and Hypothesis Three was accepted for all six channels tested.

Table 41 demonstrates the results of Research Question Two and the three hypotheses tested, looking for information related to the independent variable, willingness to share medical marijuana information. Six communication channels were examined, and four of the six channels were accepted in each instance. Newspaper and radio were rejected in H4, but accepted in both H5 and H6.

Research Question Three, and the four hypotheses analyzed are shown in Table 41. Research Question Four sought to examine information related to the independent variable, willingness to share medical marijuana information. Six communication channels were tested within each hypothesis, and five of six channels were accepted in all instances, with newspaper being the only channel rejected, in H7 only.

Table 41 summarizes the findings for Research Question Four, which examined the independent variable, perceptions of the effectiveness of medical marijuana as a treatment option. Research Question Four tested six hypotheses, with six communication channels looked at for hypotheses 12 through 16. Findings show that four of the six communication channels were accepted in all hypotheses analyzed, and newspaper and radio were rejected in one instance, H12.

Research Question Five (Table 41) tested seven related hypotheses, H17 – H23, seeking information related to the independent variable, opinion of the legalization of medical marijuana. Six of the hypotheses examined associations regarding the six communication channels investigated. Three channels were accepted for all hypotheses examined, but newspaper, radio, and Twitter were rejected for hypothesis 18, but accepted for all remaining hypotheses.

Table 41

Summary of Hypotheses

Hypothesis	**Television**	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**
RQ 1 – Usage of Channels by Credibility and Willingness to Share						
H1 Credibility of Channel	X			X	X	
H2 – Willing to Share by Channel	X		X	X	X	X
H3 – Credibility and Share by Channel	X	X	X	X	X	X
RQ 2 – Usage of Channel by Credibility of Marijuana Information						
H4 – Credibility of Marijuana Info by Channel	X			X	X	X
H5 – Channel Credibility and Marijuana Info Credibility	X	X	X	X	X	X
H6 – Willingness to Share Information and Perceived Credibility of Medical Marijuana Information	X	X	X	X	X	X
RQ3 – Usage of Channel and Willingness to Share Medical Marijuana Information						
H7 – Willingness to Share Medical Marijuana Info	X			X	X	X
H8 – Credibility of Channel and Willingness to Share Medical Marijuana Info	X	X	X	X	X	X
H9 – Willingness to Share Information and Willingness to Share Medical Marijuana Info	X	X	X	X	X	X

H10 – Credibility of Medical Marijuana Info and Willingness to Share Medical Marijuana Info	X	X	X	X	X	X
RQ4 – Usage of Channel and Perceptions of Information About Medical Marijuana's Effectiveness						
H11 – Info about the Effectiveness of Medical Marijuana			X			
H12 – Info about the Effectiveness of Medical Marijuana	X			X	X	X
H13 – Credibility of Channel and Info about the Effectiveness of Medical Marijuana	X	X	X	X	X	X
H14 – Willingness to Share Information and Info about the Effectiveness of Medical Marijuana	X	X	X	X	X	X
H15 – Credibility about Medical Marijuana Info and Info about the Effectiveness of Medical Marijuana	X	X	X	X	X	X
H16 – Willingness to Share Medical Marijuana Info and Info about the Effectiveness of Medical Marijuana	X	X	X	X	X	X

RQ5 – Usage of Channel and Forming an Opinion on the Legalization of Medical Marijuana						
H17 – Opinions of the Legalization of Medical Marijuana				X		
H18 – Opinions on the Legalization of Medical Marijuana	X			X	X	
H19 – Credibility and Opinions on the Legalization of Medical Marijuana	X	X	X	X	X	X
H20 – Willingness to Share Info and Opinions on the Legalization of Medical Marijuana	X	X	X	X	X	X
H21 – Credibility of Medical Marijuana Info and Opinions on the Legalization of Medical Marijuana	X	X	X	X	X	X
H22 – Willingness to Share Medical Marijuana Info and Opinions on the Legalization of Medical Marijuana	X	X	X	X	X	X
H23 – Opinions of Medical Marijuana as a Treatment Option and Opinions on the Legalization of Medical Marijuana	X	X	X	X	X	X

Conclusion

Throughout this chapter, six communication channel channels were compared to various dependent variables to examine relationships. These dependent variables included credibility, willingness to share, opinions of medical marijuana, and effectiveness of medical marijuana as a treatment option. Spearman's rho correlations were conducted to determine statistical significance. Two-Way ANOVA's were conducted and factorial analysis was examined to determine whether statistically significant differences were found between communication channel, channel utilization, and opinions of medical marijuana and effectiveness of medical marijuana. This study has demonstrated statistically significant, positive results with some or all of the communication channels tested in all 23 hypotheses.

Chapter Five, the final chapter of this research paper, will address the research questions that are being evaluated in this paper. The results of the data analysis from this chapter will be explored and the findings will be discussed. Chapter Five will also address limitations of the research study. Finally, the researcher will reflect on the study conducted and employ suggestions for future research.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

Introduction

The primary goal of this research study was to draw from the Uses and Gratifications theory to investigate how various communication channels related to individuals' perceptions of the legalization of medical marijuana. Its recent legalization made the research timely. Having seen so many varying opinions on the topic made investigating the communication aspect relevant. Additionally, the misunderstanding that exists about the subject made it of particular interest to further explore from a research perspective.

The second primary objective of the research study was to focus on how various traditional and social media communication channels relate to individuals' perceived notion about the reliability of information about medical marijuana found on these channels. Investigating between three primary traditional media channels of television, newspaper, and radio, as well as, three social media channels of Facebook, Instagram, and Twitter provided a well-rounded mix of channels to analyze, providing solid research results.

Methods

A quantitative research study was conducted by deploying an on-line Qualtrics survey. Prior to the distribution of the survey to the sample population, the survey instrument was tested for both validity and reliability as discussed in chapters three and four. Once all of the recommended changes were made based upon expert feedback of the survey instrument, it was ready for distribution. The survey was disseminated via email to both a random sample of 2,000 students and all faculty, management, and staff from Indiana University of Pennsylvania in September 2017. The original email request contained informed consent and an embedded link to

the survey instrument. Approximately one week later, a reminder e-mail was sent to all potential respondents who had not yet completed the survey. The following week the survey was closed and the results were analyzed.

Discussion

Demographics

Overall, 595 participants including 296 students and 299 employees of the university completed the survey. The dropout rate for the survey was 10.78%. The gender breakdown of the survey respondents yielded 67.6% female and 31.7% male participants. Of the student participants, 227 were under-graduate students and 69 were graduate students, making up 49.8% of the total respondents. The employees of the university who participated in the survey were comprised of 106 staff employees, 150 faculty employees, and 35 management employees, totaling 48.9% of respondents, with 8 responses missing from the survey data. This provided the researcher with a balanced mix of respondents from all levels of the university. When looking at the education level of respondents, 95.7% of all respondents had some college education, with 47.8% of respondents possessing a terminal degree. The results of the study must be placed in context of this higher than average education level. The 2015 United States Census Bureau reports 59 percent of US adults have completed some college and only 33% of adults have a Bachelor's degree (Ryan & Bauman, 2016). According to Geiger (2017), results of a Pew Research Center study indicated individuals with some college (65%) and those who had graduated college (65%) were more in favor of the legalization of marijuana than those with a high school degree or less (54%). When evaluating normative influences with respect to Uses and Gratifications Theory, education level may influence the strength of correlations with respect to the hypotheses tested.

When comparing descriptive statistical data between various demographic groups within this research study, some interesting observations were made. With respect to communication channel utilization, the three channels used the most between these demographic groups were television, Facebook, and Instagram. Although the results are very similar, freshman and junior students utilize Instagram the most. Sophomore and PhD level students spend the most time on television. Facebook was most utilized by senior and master's level students. The Pew Research Center (2018) began tracking social media use more than a decade ago and recently reported seven-in-ten Americans use social media for multiple purposes including engaging with news content. While the age of social media users continues to climb, the Pew Study (2018) indicates strongest use by those in the age range of 18-29, ages very much in line with the ages of college undergraduate and graduate students.

The researcher found that when looking at the same utilization for staff, faculty, and management, Instagram usage was very low for these three groups compared to the student population examined. Staff, faculty, and management all spend the most time utilizing television. Pew Center research further shows while social media use is growing and television viewership is declining, older Americans still rely heavily on television for news (Matsa, 2018). With television use high in both younger and older demographics of this study, the information learned here may suggest that an organization trying to educate the majority of the population, can rely on television and Facebook as the two most appropriate channels.

What follows this demographic analysis is a review of each research question, its connection to the literature included in chapter two and additional literature related to the findings. The discussion includes Spearman's rho findings for all of the association measures, and ANOVA findings for the differences. The researcher analyzes the connection of each

question to Uses and Gratifications Theory to determine how each question supports or refutes the premises of UGT. A summary of integrated findings for each of the research questions is provided in Table 42.

Perceptions of Credibility and Willingness to Share Information from Communication Channels

The first research question examined how communication channels related to individuals' perceptions of credibility of information from those channels. It also explored the relationship between communication channels and individuals' willingness to share information from those channels. The researcher sought to determine whether more time spent using a channel resulted in higher perceived credibility of that channel and higher willingness to share information from that channel. The first hypothesis tested found positive, statistically significant findings existed for three of the six channels: television, Facebook, and Instagram. One possible explanation as to why three of the six channels did not have statistically significant correlations is that individuals already have a level of trust in a communication channel before they decide to use that channel as an information resource. This existing trust could be obscuring any statistical relationship because of consistent higher trust levels. Various studies provide support for the idea that trust is related to media usage with older demographic groups having more trust in media than younger demographic groups (Ceron, 2015; "Older generations", 2017). Again, studies from the Pew Research Center support the contention that older demographics are heavier users of radio and newspapers, two of the three communication channels cited here that did not have significant correlations (Whiting & Williams, 2013).

The second hypothesis, which examined the relationship between time spent utilizing a communication channel and willingness to share information, a found a statistically significant

relationship existed at the $p<.01$ level between the two variables with five of the six channels examined. The strongest correlation was between time spent using the channel and Facebook (.364), followed by Twitter (.261), Instagram (.235), television (.193), and radio (.165) respectively, with no significance indicated between time spent on a communication channel and newspaper. One possible explanation of the stronger correlations with the three social media channels of Facebook, Instagram, and Twitter is the ease with which a user can instantly share this information. Another possible consideration is that "share" may imply social media sharing to some individuals while discussing information gathered from traditional media outlets may not be seen as "sharing" by respondents.

Reflecting back to the theoretical framework for this study, Uses and Gratifications Theory, the researcher believes that this supports UGT as individuals choose which media to consume, and the gratification they receive from the social media channels may be greater because of the convenience and ease of use. This perception is supported by various scholars including Osatuyi (2016) who have investigated individuals' willingness to share information from social media. A study by Lee and Ma (2016) indicates sharing news information gathered from social media has become a "phenomenon" and further connects to Uses and Gratifications theory by exposing how respondents to the study were driven by a desire for socialization and status-seeking as reasons for sharing information. As the research for this study compared mean scores between demographic groups to understand credibility perception (Table 6), the six channels reviewed did not contain any noticeable differences between the demographic groups when analyzed, suggesting that the survey population, regardless of their affiliation with the university, felt similarly.

The third hypothesis was utilized to ascertain the association between perceived credibility of information from a communication channel and individuals' willingness to share information from that communication channel. Correlations were calculated and strong, positive statistically significant findings were found for all six communication channels at the $p<.01$ level. Additionally, the results were all within a close range, with the most statistical significance found with Instagram (.649), followed by Twitter (.619), television (.568), radio (.560), newspaper (.559), and Facebook (.555), respectively. The researcher anticipated a strong correlation would exist with this hypothesis since it was testing credibility and willingness to share information. At its core, UGT is a theory designed to explain how individuals use media and holds the premise that users seek out media for specific gratification purposes. As UGT is intended to explain what users do with media, research utilizing this theory provides support for news sharing as a primary gratification among users (Musi, Azmi, & Ismail, 2015; Whiting & Williams, 2013). Uses and Gratifications theory is supported by this hypothesis as individuals select which channels to utilize and hence are more willing to share information they believe is credible, suggesting they receive stronger gratification from those channels.

Communication Channels and Perceptions of Credibility of Medical Marijuana Information

The second research question attempted to uncover the relationship between the usage of communication channels and individuals' perceptions of the credibility of medical marijuana information. The fourth hypothesis was seeking to ascertain whether a statistically significant relationship existed between time spent utilizing various communication channels and perceptions of credibility of medical marijuana information from that channel. Analysis of the data determined that four of the six communication channels examined had a statistically

significant relationship at the p<.01 level. Those channels included Facebook, Instagram, Twitter, and television. There was not a statistically significant relationship between time spent and perceptions of credibility of medical marijuana information with respondents with respect to newspaper and radio. Based upon the high median scores of television (8.00) and radio (7.00) from Table 9, the researcher surmises this could indicate that those channels are already deemed credible. This supposition is supported by previous research. In a study researching communication channel news credibility during the Iraq war, 59.5% of respondents felt that radio was a credible source (Choi, Watt, & Lynch, 2006). Prior research by Meyer (1988) found that although individuals may not agree with how a particular article is presented in the newspaper, overall, they still believe the content. This research determined that credibility of traditional channels is high, so there is no variability in this measure to match variability in time spent; so it would not impact users' perceptions of medical marijuana information. This can be seen in the high mean and median scores in Table 9 in Chapter Four.

The next hypothesis, H5, tested the association between perceived credibility of a communication channel in general and perceived credibility of medical marijuana information from that communication channel. Findings demonstrate a statistically significant relationship exists between these two variables for all six communication channels examined. The correlations are very strong, and very close between all six communication channels, with the strongest correlation with television (.583), followed by Facebook (.577), Twitter (.564), Instagram (.556), newspaper (.539), and radio (.494). The researcher surmised these close correlations as if an individual already believes in the credibility of a communication channel it makes sense that they would find the medical marijuana information from that channel credible as well. A Twitter study conducted by Westerman, Spence, and Van Der Heide (2013) found that

there was a positive relationship between credibility of information and cognitive elaboration. Additional research of Facebook reports that user engagement increases credibility (Mazer, Murphy, and Simonds, 2009). Research by Kaye and Johnson (2014), however, differs from the results of this research, finding that social networking sites are not deemed a very credible source of information.

Hypothesis six results show positive, statistically significant correlations exist with all six communication channels tested, with the highest correlation with Facebook (.561). Previous research found individuals are more willing to share information once they begin to engage in trust (Wang, Yeh, Chen, and Tsydypov, 2016). All six channels had strong correlations when testing these variables, which may suggest that individuals are willing to share information from channels they perceive as credible, thus making the association between willingness to share information from a channel and perceived credibility of medical marijuana information from that channel so strong.

The researcher compared results between demographic groups of the survey question asking how credible medical marijuana information was on a communication channel. Looking at gender, there were no interesting findings. When comparing university affiliation, the results between demographic groups did not seem to be different based on this demographic category. One interesting finding by the researcher was that of the three traditional communication channels examined, the majority of respondents felt that radio was the most credible. According to a study examining individuals' trust, respondents indicated a high degree of trust for television news broadcasts and newspaper articles, but expressed a lower degree of trust for information obtained from friends and relatives (Boush, Kim, Kahle, and Batra, 1993). Respondents in this

same study, also held a high degree of trust for television and radio product advertisements, consistent with the credibility findings from this research.

Communication Channels and Willingness to Share Medical Marijuana Information

To understand the relationship between communication channels and individuals' willingness to share information about medical marijuana, hypotheses under Research Question Three were examined. The first hypothesis, H7, sought to determine the association between the time spent utilizing a communication channel and individuals' willingness to share medical marijuana information from that channel. Analysis determined that a statistically significant correlation existed at the $p<.01$ level for four of the six communication channels tested, Facebook, Instagram, Twitter, and television. The results for radio and newspaper did not show a statistically significant correlation. The research seems to indicate that radio and newspaper have been the two channels that regularly do not show a statistically significant correlation, perhaps because they do not have as much information on the topic of medical marijuana as social media. When comparing demographic answers to the survey question, "I am likely to share information about medical marijuana from this channel" (Appendix A, #11), responses from faculty in this category were higher than responses from every other demographic, with respect to each of the six communication channels analyzed. This may be indicative of the education level of faculty, which supports Uses and Gratifications theory as education is a socially exposed norm and expectation as explained in Figure 1 illustrating Blumler's (1979) Framework.

Hypothesis 8 examined the association between perceived credibility of a communication channel and willingness to share medical marijuana information from that channel. Findings determined there were positive, statistically significant correlations at the $p<.01$ level between these variables with all six communication channels examined, with the three social media

channels producing three of the four strongest correlations. These results for the three social media channels examined are consistent with findings of previous research. As noted by Ding and Zhang (2010), consumers are attracted to social networks based upon the ability to share information. Research by Reid and Reid (2007), however, are not consistent with these findings, suggesting individuals are less likely to share information through text based applications.

The next hypothesis, H9, examined the correlation between sharing of information in general from a communication channel, and the willingness to share medical marijuana information from that same channel. A Spearman' rho determined that statistically significant relationships existed at the $p<.01$ level with all six communication channels. The findings were all strong and closely correlated, with Instagram (.592) demonstrating the strongest correlation, followed by Twitter (.546), television (.500), Facebook (.476), newspaper (.461), and radio (.413), respectively. Previous studies indicate that individuals seeking information are influenced by shared content (Less and Ma, 2016).

Hypothesis 10 examined the association between perceived credibility of medical marijuana information from a communication channel and individuals' willingness to share medical marijuana information obtained from that channel. Findings indicate a positive, statistically significant relationship exists between the two variables with all six communication channels analyzed. All of the correlations were very strong, with Instagram (.605) having the strongest correlation, and newspaper (.497) having the weakest correlation. The strength of the correlations with all six communication channels implies that individuals are definitely willing to share information about medical marijuana from a communication channel if they believe the information is credible. Additional research by Mizuno (2016) indicates that individuals are willing to believe media that receives significant channel exposure. Further research by Stevens

(2011) surmises that individuals' judge the credibility of information based on who posted it. These findings support UGT theoretical perspective as these represent normative influences as shown in Figure 1 in Chapter Two of this research which explains Blumler's framework.

Communication Channels and Perceptions of Medical Marijuana as a Treatment Option

The fourth research question in this study examined the relationship between communication channels and individuals' perceptions of the legalization of medical marijuana. Six hypotheses were tested to further understand the relationships between these variables. Hypothesis 11 assessed the difference between the communication channels, the utilization of those communication channels, and perceptions of information about medial marijuana's effectiveness. Results indicated that there was no significant difference in perceptions of medical marijuana's effectiveness based on communication channel and time spent utilizing the channel. Hypothesis 12 analyzed the relationship between time spent using a communication channel and individuals' perceptions of information about the effectiveness of medical marijuana. Findings from this hypothesis indicates that the three social media channels, Instagram, Facebook, and Twitter all had positive, statistically significant correlations at the $p<.01$ level. Television had a positive, statistically significant correlation at the $p<.05$ level, and there were no statistically significant correlations between these two variables with radio and newspaper.

Again, social media channels researched provided stronger statistically significant correlations than the traditional media sources investigated. Looking at the theoretical framework for this research, Uses and Gratifications Theory, these results suggest individuals may be receiving more gratification from social media, thus providing these strong correlations. Individuals may have an emotional connection to finding cures for certain medical conditions (Mangold & Faulds, 2009) for themselves or friends or family members.

An article on social networking sites by Stevens (2011) suggests that content shares through social media sites provide information to health care professionals about medical information users are seeking to obtain, thus allowing these medical providers to disseminate information appropriately. A 2004 study by Dimmick found that internet sites and radio provide different gratifications for users, thus a possible explanation for the lack of significance with respect to radio. These hypotheses were designed to fall into the cognitive category of needs according to UGT (Katz, Haas, & Gurevitch, 1973), which drives users to gain knowledge and understanding.

When analyzing the relationships between credibility of communication channels and individuals' perceptions of information about medical marijuana's effectiveness, Hypothesis 13 findings determined that all six communication channels had positive, statistically significant correlations at the $p<.01$ level. Hypothesis 14 findings determined all six channels researched had positive, statistically significant results at the $p<.01$ level. This hypothesis sought to understand the relationship between individuals' willingness to share information in general from a communication channel and their perceptions of information about medical marijuana's effectiveness. When analyzing the credibility of communication channels and individuals' perceptions of medical marijuana, and aligning it with UGT, the researcher surmised that credibility provided gratification to individuals. An article by Stavrositu and Sundar (2008) explains that traditional media generally requires validation of information whereas the internet does not, thus making individuals conduct gatekeeping of credibility of information. When evaluating the relationship between these two variables, the strong, positive correlations align with the premise of Uses and Gratifications Theory, suggesting that individuals will select media channels based upon the gratifications they receive from those channels. According to Figure 1

in Chapter Two of this research, Blumler's (1979) Framework, credibility falls in the top left quadrant, facilitators and enablers.

Hypothesis 15 tested the correlations between perceived credibility about medical marijuana information from a communication channel and individuals' perceptions of information about medical marijuana's effectiveness. The results determined that a statistically significant, positive relationship existed at the $p<.01$ level with all six communication channels examined. The next hypothesis, H16, sought to understand the relation between willingness to share information about medical marijuana on a communication channel and individuals' perceptions of information about medical marijuana's effectiveness. Hypotheses 13, 14, 15, and 16 all found strong statistically significant, positive relationships with all six communication channels analyzed. Additionally, the statistical significance of the correlations was close between these channels. When looking at results between the various demographic groups analyzed, the social media channels have greater credibility. One possible explanation for this is supported by Lewis (2012). Lewis explains that there is a more positive effect when a user's uses and gratifications are consistent with the media they encounter. In other words, if an individual selects a communication channel they deem as credible, seeking to gauge the effectiveness of medical marijuana, they are less likely to use the channel for entertainment purposes, and more likely to use it to become knowledgeable on the topic of interest. Another factor may be that there is less variability of credibility of traditional media (Table 13), and that the greater variability in credibility for social media is allowing for higher correlations.

Communication Channels and Perceptions of the Legalization of Medical Marijuana

The final research question investigated, RQ5, sought to understand the extent to which communication channel utilization relates to helping individuals form opinions on the

legalization of medical marijuana. Hypothesis 17 assessed the difference between communication channels, utilization of those channels, and opinions on the legalization of medical marijuana. Results of the ANOVA indicated there was no significant difference in individuals' opinions on the legalization of medical marijuana based on communication channel and utilization of that communication channel. Hypothesis 18 examined the relationship between time spent on a communication channel and individuals' opinions of the legalization of medical marijuana. Results for H18 demonstrated positive, statistically significant findings existed at the $p<.01$ level in three of the six channels examined, Instagram, Facebook, and television. The remaining communication channels, newspaper, radio, and Twitter did not have statistically significant results.

Prior UGT research suggests that user gratification is associated with consumption behaviors. A study by Luo (2002) indicates that web-use was related to individuals seeking information, which may explain the significant findings for Facebook and Instagram, but does not agree with the lack of significance for Twitter. Other research by Palmen and Kouri (2012) also refutes the lack of statistical significance for Twitter. Their findings indicate that individuals may have trouble understanding information if it is too long. A study by Craig (2009) lends a possible explanation for the lack of statistical significance for radio, suggesting that the introduction of the internet would lead individuals to utilize the radio less frequently.

The final five hypotheses tested, H19, H20, H21, H22, and H23, found positive, statistically significant findings at the $p<.01$ level for all six of the communication channels examined. Hypothesis 19 assesses the relationship between perceived credibility of a communication channel and individuals' opinions about the legalization of medical marijuana. The three social media channels analyzed, Instagram, Facebook, and Twitter had the strongest

positive correlations. Lindsay (2010) determined that individuals will choose social media as their primary means of obtaining accurate information as the overall utilization of social media increases. A 2008 Pew Research study by Bailey indicated that individuals found television, newspaper, and radio at least somewhat credible, scoring at least a 3 on a 4-point scale. This same study discussed the overall credibility ratings of traditional media, indicating only 28% of individuals ranked their local television station and 22% rated their local newspaper as credible. These latter findings contradict the findings of this study showing social media channels examined had the highest positive correlations.

The next hypothesis, H20, explored the relationship between willingness to share information from a communication channel in general, and individuals' opinions on the legalization of medical marijuana. Again, all six channels had positive, statistically significant, positive correlations at the $p<.01$ level, with the strongest correlations occurring with the three social media communication channels. Hypothesis 21 sought to determine whether there was a statistically significant relationship between perceived credibility of a communication channel and individuals' opinions on the legalization of medical marijuana. Findings indicate a strong, positive, statistically significant relationship at the $p<.01$ level for all six communication channels researched, with the strongest correlations occurring with the three social media channels. Similar findings occurred with the following hypothesis, H22, which investigated the relationship between perceived credibility of medical marijuana information from a communication channel and individuals' opinions on the legalization of medical marijuana. All six channels investigated had statistically significant findings, but the strongest occurred with the three social media channels assessed. Previous research by Johnson and Kaye (2014) found that online news and online literature were both deemed more credible sources of information than

their traditional media counterparts, which is consistent with these findings. The higher credibility and lower standard deviation results of traditional communication channels as shown in Table 10 may reduce the possible level of correlation reached.

The final hypothesis, H23, examined the association between opinions of medical marijuana as a treatment option and individuals' opinions on the legalization of medical marijuana. The results of this hypothesis produced the strongest correlations of all the hypotheses tested. All six communication channels analyzed had positive, statistically significant correlations at the $p<.01$ level, with the strongest correlation existing with Instagram (.824), followed by Twitter (.810), Facebook (.778), television (.777), radio (.738) and newspaper (.731), respectively. These correlations are very close and very strong, suggesting that if individuals believe medical marijuana is a viable treatment option for serious medical conditions, individuals' opinions about its legalization will also be favorable. Research suggests that Twitter users make determinations about consuming content as well as reacting to existing content based upon their individuals needs and gratifications (Kim, Kim, & Hoon Sun, 2014), supporting the strong positive correlation for Twitter with respect to H23.

When examining the results of the survey based on university affiliation, Instagram was the preferred channel to utilize to gauge the effectiveness of medical marijuana as a treatment option. Instagram had the highest mean scores (based on a 7-point scale), as follows: freshman (4.65), sophomore (4.54), junior (4.54), senior (5.05), master's level (4.44), PhD level (5.50), staff (5.39), faculty (6.25), and management (5.83). A national survey conducted by Fox (2011) explained that individuals will seek information from different channels depending on the medical condition they are researching, suggesting that although Instagram has the highest mean

estimate for this research, it may not be the preferred communication channel for all medical treatment options.

Integrating Findings

Table 42 illustrates of the results of each research question, summarizing the possible instances of acceptance of each hypothesis that looked at associations within that research question. This included 21 of the 23 hypotheses with the exceptions of H11 and H17. The table also shows the total number of possible instances of acceptance by research question, and the total number of instances accepted by communication channel.

Table 42

Support for Research Question by Communication Channel

	Television	**Newspaper**	**Radio**	**Facebook**	**Instagram**	**Twitter**	**Total by RQ**
RQ1: Tested H1, H2, H3	3	1	2	3	3	2	14 /18
RQ2: Tested H4, H5, H6	3	2	2	3	3	3	16 /18
RQ3: Tested H7, H8, H9, H10	4	3	3	4	4	4	22 /24
RQ4: Tested H12, H13, H14, H15, H16	5	4	4	5	5	5	28/30
RQ5: Tested H18, H19, H20, H21, H22, H23	6	5	5	6	6	5	33/36
Total Hypotheses Supported (out of 21)	21	15	16	21	21	19	113 supported/ 126 total

Based upon Uses and Gratifications theory, this research sought to utilize variables associated with normative influences, as discussed in Chapter Two, to investigate how communication channels influenced individuals while testing five research questions. Variables included credibility, willingness to share, effectiveness of medical marijuana as a treatment option, and opinions of the legalization of medical marijuana. Specifically, this research was designed to utilize Blumler's (1979) framework to craft the research questions and hypotheses and the variables were created to fit into a specific quadrant of the framework, as explained in Chapter Four of this research.

The five research questions were designed to uncover patterns of usage and their relationship to these variables, to see whether Uses and Gratification theory was supported. Six communication channels were selected because each one offers different characteristics from the others, thus differentiating their potential gratifications (Katz, Blumer, and Gurevitch, 1974). These channels included television, newspaper, radio, Facebook, Instagram, and Twitter. As illustrated in Figure 1, presented in Chapter Two, these channels fit into the top left quadrant of differentially distributed opportunities and capacities, defined as facilitators and enablers.

These research questions included 23 hypotheses and were designed to investigate six communication channels. According to Table 42, television, Facebook, and Instagram had significant results for all 21 hypotheses examined for associations. When evaluated, newspaper supported only 15 of the 21 hypotheses, which was the fewest of all channels researched. Radio was supported for 16 of the 21 tests, and Twitter was found significant in 19 of the 21 possible trials. Looking at Table 13, newspaper and radio had had the lowest standard deviations, which may have held down the strength of possible correlations. Overall, 126 possible associations existed. Of those, 113 were found to produce statistically significant findings.

When analyzing results across the five research questions, the researcher uncovered some interesting findings. Although credibility of a communication channel alone, only produced statistically significant results in 3 of the 6 communication channels investigated, when other variables were added, results changed. When analyzing the relationship between credibility of communication channels and perceived credibility of medical marijuana, all six channels produced significant findings. Also, all six communication channels researched produced significant results when investigating the relationship between the credibility of a communication channel and the effectiveness of marijuana as a treatment option.

Similar results were found when investigating willingness to share across the five research questions. Initially, when respondents were asked about willingness to share information from a communication channel, five of the six channels had a statistically significant relationship. However, when analyzing the relationship between credibility of medical marijuana information and willingness to share, all six channels produced statistically significant results. Additionally, when exploring the relationship between the effectiveness of medical marijuana as a treatment option and individuals' willingness to share information, all six channels had significant findings. Finally, when examining both credibility and willingness to share information, all hypotheses that measured the relationship of these two variables together produced statistically significant findings. Utilizing these two variables together is a major factor to consider, based on these findings. Overall, the variables researched throughout this study support UGT theory.

The results of this research conclude all six channels of communication could be used to disseminate information about medical marijuana. When considering university affiliation, all groups surveyed preferred the three social media channels: Facebook, Instagram, and Twitter

with respect to the credibility of information about medical marijuana as displayed in Table 6 in Chapter Four of this research. Additionally, these same groups estimated mean scores for likeliness to share information about medical marijuana were highest for the three social media channels (Table 7). These same respondents rated overall credibility higher for traditional media (Table 10). To gauge the effectiveness of medical marijuana as a treatment option, when broken down by university affiliation, all groups had the highest estimated mean scores for the three social media channels, except for junior students, who scored radio (4.48) slightly higher than Facebook (4.4) as shown in Table 11. According to Cheung (2011), social media sites allow users to learn from each other. Education and knowledge are facilitators according to Blumer's (1979) framework for UGT as discussed in Chapter Two.

Limitations

This study produced several significant findings, but some limitations exist that should be mentioned for consideration. As anticipated, the first limitation of this study is the sample utilized for this research. Since the study occurred at Indiana University of Pennsylvania, the majority of the respondents were residents of the state. If the respondents were more geographically dispersed, additional analysis could have been conducted to determine whether any relationships or differences existed in perceptions about medical marijuana between residents of Pennsylvania and non-residents of the state. The results may also differ if another university in another part of the country where medical marijuana has been legalized for a longer period of time were utilized as respondents for the survey. The overall findings of this study are limited to a university setting, even though the more general audience for this topic are all Pennsylvania residents.

Additionally, although the number of participants in the research study provided statistically significant results, it would have been desirable to have more respondents to achieve an optimal sample size of the two sub-groups within the overall group; the first sub-group consisting of students, both under-graduate and graduate; and the second sub-group consisting of faculty, management, and staff of the institution. Since 595 responses were generated, the overall results were significant but if the groups were split, more participants would have been necessary to determine statistical significance. Plus, not all staff members may have had adequate access to a computer, or even their university email, making participation in the survey prohibitive.

Another limitation of this research study was lack of additional communication channels on the research questionnaire. To keep the survey instrument manageable, six communication channels were selected. Additional communication channels including various web-sites would have provided a broader depth on investigation into the subject matter and this will be discussed further in the recommendations for future research section.

With the recent legalization of marijuana in the Commonwealth of Pennsylvania, it was a concern of the researcher that information about the topic may be limited in nature. If the information were not readily available, then the results of the survey may have been inaccurate. Based upon the data collected, information about medical marijuana appears to be readily available on the various communication channels selected for this study.

An additional limitation to note is the lower variability of scores for willingness to share and credibility for traditional communication channels. Plus, traditional media may not have as much content about medical marijuana. Furthermore, cookies may have produced more content for those individuals seeking medical marijuana information. These factors may have led to statistical impacts in the results of the findings.

A final limitation was the lack of interest in the topic by potential respondents. The researcher received correspondence from three potential participants suggesting they were not interested in participating because they had absolutely no interest in the research topic. This may be due to the lack of available information on the topic or may be personal preference. Other potential respondents may have decided not to participate because they lacked interest in the research topic, but since that was not corresponded in any manner, it is unknown. One reason for this may be that they nor any of their family or friends suffer from the common conditions treated with medical marijuana, such as cancer, muscle spasms, intractable pain, or seizure disorders (Medical Cannabis Program Update, 2016).

Recommendations for Future Research

The lack of scholarly research on the relationship between communication channels and medical marijuana information provides the opportunity for additional future research regarding this topic. A mixed methods research study would be an excellent way to expand this research and further deep dive into how communication channels relate to individual's perceptions about the legalization of medical marijuana. Utilizing a mixed methods approach would allow researchers to understand how participants react to various messages through various communication channels.

A second area of future research would be exploring the relationship between web-site utilization and individual's perceptions about the legalization of medical marijuana. By utilizing a quantitative study, research could be conducted examining certain web-sites as communication channels. The goal of this study was to look at certain communication channels, but web sites really provide the opportunity for a study of its own. This same survey instrument can be utilized for a future research study to understand how web site selection relates to an individual's

perception about the legalization of medical marijuana. Additionally, this research study can further be evaluated to determine whether there are any significant findings when comparing various demographic groups including year of birth, level of education and student vs. employee of the university.

Some interesting findings from this research that need to be further explored include the difference in credibility levels between overall and credibility of information (Table 10) and credibility of medical marijuana information (Table 15) are minimal with respect to the social media channels examined. However, the credibility of the channel overall and credibility of medical marijuana information on the channel drop from 0.2 (television) to 0.5 (radio) with traditional communication channels. Further exploration could determine how these findings might impact marketing campaigns, target messages, and selection of communication channel information dissemination.

In contrast, sharing of information in general from a communication channel drops for both traditional communication channels (Table 12) and social media channels (Table 19) by approximately a full point from overall sharing of information in general from a communication channel and sharing medical marijuana information from a communication channel. Additionally, strong correlations were found between overall credibility and sharing (Table 14) but lower correlations between overall credibility and sharing of medical marijuana information. Future research is needed to understand why there is a drop in the strength of the correlations as well as why the credibility to sharing link is weaker for medical marijuana than general information.

Further research is needed to understand if individuals have a perceived difference in credibility and willingness to share information based on the type of content they are consuming.

User-generated content and professional content may play different roles in individuals' perceptions of the legalization of medical marijuana and it perceived effectiveness as a treatment option. By investigating whether there is a preferred type of content with users, then the appropriate channels and the best messages could be delivered.

Political communication research could also be utilized to further the advancement of this research. Medical marijuana legalization is political in nature and utilizing agenda setting theory, researchers could see how messages about medical marijuana are deployed through various communication channels and whether those messages are perceived the same as messages about medical marijuana that are not driven by a political agenda. Through investigation of priming and framing, it can be determined whether communication channels influence individuals' perceptions about the legalization of medical marijuana.

Conclusion

This research study provided valuable information in addition to the analysis utilized to answer the research questions. Surprisingly, newspaper utilization and radio utilization did not provide statistically significant associations in several of the hypotheses tested. This may indicate either an already high level of credibility for these channels. The research questions analyzed produced statistically significant correlations between communication channel utilization and willingness to share information from that channel for three of six communication channels. When specifically looking at time spent utilizing a communication channel and individuals' willingness to share medical marijuana information, the statistical significance occurred in four of the six channels investigated, with radio and newspaper remaining the two communication channels whose relationships were not statistically significant.

The strongest correlations in the study were between individuals' opinion of marijuana as a treatment option and individuals' opinions on the legalization of medical marijuana. For all six communication channels investigated, findings were statistically significant at the $p<.01$ level, and the correlations were positive and very strong, indicating all six channels are utilized to assist individuals in forming their opinions of the legalization of medical marijuana. This finding can provide beneficial information to health care and political communicators that release information about the legalization of medical marijuana. To maximize efficiency, those interested in disseminating medical marijuana information should reach out to those that have favorable opinions of marijuana as a treatment option.

This research study is not intended to be the final research necessary in this topic, but rather an initial investigation into a topic that allows for considerable research in the future. This study was intended to investigate how communication channels related to individuals' perceptions of the legalization of medical marijuana, as well as their perception of credibility of medical marijuana information presented on these channels. This research also sought to uncover the relationship between utilization of various communication channels and individuals' willingness to share information about medical marijuana from those channels. With the potential impact that the legalization of medical marijuana can have on those individuals with serious medical conditions as outlined in Chapter 1, an understanding as to how these communication channels play a factor in disseminating this information remains critical. This research did not conduct a deep analysis of demographic factors, making it necessary to conduct future research in this area.

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Appendix A

Survey Questions

1. I understand the informed consent that was included in the e-mail message. I agree to participate in this study and know that I can discontinue my participation at any time. I also understand that my personal information will be kept anonymous. I also have been I have read the Informed Consent and agree to participate in this research study. I also have been informed to print a copy of the Informed Consent for my personal records.
   _____Agree
   _____Disagree
2. What is your gender? Male/Female/Prefer Not To Answer
3. Are you at least 18 years of age? _____
   a. If under 18, please continue to register for the Gift Card but your participation is not necessary in this survey.
4. What is your age? Drop down box with ranges. Under 25, 25-35, 36-45, 46-54, 55-64, 65+
5. Where is your permanent residence? List all 50 states plus none of the above.
6. What is your affiliation with Indiana University of Pennsylvania?
   _____Under-Graduate Student
   _____Graduate Student
   _____Staff
   _____Faculty
   _____Management

If answer is student, go to this question:

6.A What is your current student status?

_____ Freshman _____Sophomore _____Junior _____Senior _____Master's Level _____PhD Level

If answer is staff, faculty, management, go to this question:

6B. What is the highest level of your education?

_____Some high school ____High school graduate _____Some college
_____Associate's Degree _____Bachelor's Degree ____Master's Degree
_____Terminal Degree (MFA, EdD, PhD)

7. How much time per do you spend using each of the following communication channels?

	Never	Quarterly	1-2 times per month	3 times per month	1 time per week	2-3 times per week	4-6 times per week	0-1 hours per day	1-2 hours per day	2-4 hours per day	4-6 hours per day	More than 6 hours per day
Television												
Newspaper												
Radio												
Facebook												
Twitter												
Instagram												

8. I feel this communication channel is credible.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

9. I’m likely to share information I have received from this communication channel with others.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

10. Information about medical marijuana is credible on each of the following communication channels:

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

11. I'm likely to share information about medical marijuana from this channel.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

12. To gauge the effectiveness of medical marijuana I would turn to this communication channel.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

13. To form my opinion on the legalization of medical marijuana I would turn to this communication channel.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Television							
Newspaper							
Radio							
Facebook							
Twitter							
Instagram							

14. Thank you for completing this survey. If you would like to be entered in a drawing to win a Wal-Mart Gift Card, please click **YES** below. To preserve the confidentiality of your responses, you will be taken to a separate survey to provide your contact information.

    a. YES – take me to the registration form for the Wal-Mart $50 gift card drawing. (Note: Concludes the survey and takes the respondent to a separate survey where they can register for the gift card drawing.)
    b. NO – I do not wish to be entered in the drawing. (Note: Concludes the survey.)

CONCLUDING SCREEN FOR THOSE WHO DO NOT MEET DEMOGRAPHIC REQUIREMENTS:

Thank you for your participation in our survey. Unfortunately, you do not meet the requirements for the population we wish to study, and this concludes your survey.

Appendix B

Survey Validity Questionnaire

This survey validity questionnaire was reprinted in part with permission from E. Kormos, 2016.

Please provide responses to the following questions in relation to the survey.

1. Given your professional experience, do the survey questions accurately address the research topic?

2. Does the format of the survey seem logical and consistent?

3. Is the language and structure of the questions appropriate for Medical Marijuana communication?

4. How long did it take to analyze the survey? What, if any, concerns do you have regarding the length of time needed to complete the survey?

5. What questions, if any, may be confusing or unclear?

6. What, if any, questions would you recommend to be omitted from the survey?

7. What, if any, questions would you recommend to be included in the survey?