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Examining Media Dependency and Parasocial Relationship on Protective Action Behaviors During COVID-19

Amy Hyman
ahyman@stu.jsu.edu

DISSERTATION APPROVAL

Candidate: Amy Dawn Hyman

Major: Emergency Management

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Approval:

Jane Kushma — 10/27/21
Jane Kushma
Professor of Emergency Management — Date

Oct. 27, 2021
Shih-Kai Huang
Associate Professor of Emergency Management — Date

Nov 2, 2021
Chongming Wang
Assistant Professor of Emergency Management — Date

11/18/2021
Channing R. Ford
Dean, Graduate Studies — Date

EXAMINING MEDIA DEPENDENCY AND PARASOCIAL RELATIONSHIP ON PROTECTIVE ACTION BEHAVIORS DURING COVID-19

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AMY DAWN HYMAN

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ABSTRACT

The COVID-19 pandemic illuminated the significant role that the mass media plays in disseminating messages to the public during disasters. Information disseminated during a disaster influences individuals' decision-making process regarding protective actions. This study examined the relationship between media dependency theory, parasocial relationship, and media effects during the COVID-19 pandemic. A quantitative approach was used with a convenience sample. The sample focused on residents in the state of Arkansas and specific generational cohorts. The results found that the generational cohorts had different media preferences during the height of COVID-19. While media dependency was found to have a significant relationship with some media effects, they were small effect sizes. Parasocial relationship was not found to have any relationship with media effects. Lastly, a relationship between media dependency and parasocial relationship was found. Crisis communication professionals and emergency managers should consider different media behaviors between age groups in order to effectively communicate with their audience. Future studies are needed to further examine the role that mass media plays in the decision-making process during disasters.

Keywords: COVID-19, media dependency, parasocial relationship, media effects, risk communication, crisis communication, generational cohorts, disaster, pandemic, protective actions, decision-making

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Chapter 1: Introduction

How individuals interpret and perceive information disseminated during a disaster or public health emergency can influence their decisions and behaviors. While providing information in a timely manner during a high-risk event is known to save lives and property (Wukich, 2015), what individuals do with that information directly influences event outcomes. Mass media is an important source of information during a disaster (Sherman-Morris, 2005), and one where individuals often turn to seek additional information during a high-risk event.

Traditionally, mass media has included television, radio, and newspaper. However, social media can now be included in the list of mass media platforms. Social media platforms have provided more immediate access between mass media and the public. Individuals have begun to seek information on disasters and other high-risk events on social media platforms. A recent example was the COVID-19 pandemic, where social media played a prominent role in disseminating information about the novel virus (Gottlieb & Dyer, 2020).

However, social media was not the only mass media platform utilized during COVID-19. Other mass media platforms, including traditional platforms, played a role in disseminating information about COVID-19 to the public, including television, radio, podcasts, newspapers, and digital articles (Gottlieb & Dyer, 2020). The media played a significant role in disseminating information throughout the pandemic, which provided an opportunity to examine their role during a global pandemic.

The COVID-19 pandemic was officially declared a world pandemic in March 2020 by the World Health Organization (WHO) (Yang et al., 2020). COVID-19 is a novel respiratory virus caused by coronavirus and has infected millions around the world (WHO, n.d.). Media, subject-matter experts, and public officials have disseminated information on how to protect

oneself from infection in order to flatten the curve of cases. Protective actions such as wearing face masks, social distancing, washing hands, and quarantining at home have all been recommended by multiple sources (Centers for Disease Control [CDC], 2021, Jernigan, 2020; WHO, 2020;). Unfortunately, fear, panic, and misinformation spread through mass media influenced individuals' behavior during COVID-19.

While many official sources have released information combating false rumors to improve compliance with protective actions, they have not always been met with success. Compliance has been found to be influenced by many factors, including the information source (Ball-Rokeach & DeFleur, 1976), age (Stokes & Senkbeil, 2017), trust (Paul et al., 2015), and a perceived relationship with media personalities (Horton & Wohl, 1956). Media personalities, or media personas, are "mediated representations of presenters, celebrities or television/movie characters" (Labrecque, 2014, p. 134). This includes news anchors, actors and actresses, TV show hosts, famous athletes, meteorologists, or even a fictional character such as Harry Potter (Brown, 2015; Schmid & Klimmt, 2011; Sherman-Morris et al., 2020). An improved understanding of compliance behavior with COVID-19 protective actions, the factors that inhibit or promote it, and the relationship between these factors is the focus of this study.

Problem Statement

Disasters, whether chronic or acute, cause physical, social, and economic disruption (McEntire, 2005). Some disaster consequences can be prevented by planning or taking certain protective actions before or during the incident. Common protective actions for hazardous events include evacuation or sheltering in place (National Research Council [NRC], 2006). Proper protective actions can help save lives during a hazardous or high-risk event (Durage et al., 2014). When individuals do not comply with recommended protective actions, adverse outcomes can

occur (Lazo et al., 2015). Dependent on the hazardous event, complying with recommended protective actions can reduce loss of life, limit property damage, and even lessen social and economic disruption (Lindell & Perry, 2000). Individuals' compliance with recommended protective actions can be influenced by several factors, including the perceived trustworthiness of the information source, situational factors, and social contexts (NRC, 2006). Other factors can complicate the protective action decision process. Information seeking, conflicting messages, and disagreement among information sources about the threat are all circumstances that complicate the decision-making process for protective action compliance (NRC, 2006).

The COVID-19 pandemic provides an excellent case for exploring this protective action decision process. During the COVID-19 pandemic, public officials, along with organizations and agencies, disseminated conflicting messages on COVID-19 protective actions (Nagler et al., 2020). Public health officials and medical professionals also disagreed on various treatment methods, protective actions, and overall response strategies to COVID-19 (Nagler et al., 2020). These circumstances could have played a role in individuals' decision-making processes when determining whether or not to comply with recommended protective actions.

Perceived trust in and relationship with media and authorities may also influence an individual's willingness to comply with recommended protective actions during a disaster (Sherman-Morris, 2005). While the advancement in information technology has increased access to mass media, trust in media has declined, which can affect individuals' willingness to believe information disseminated by this source, along with influencing their behavior and decisions (Fletcher & Park, 2017; Newman et al., 2019). Recent studies have found that trust in the media across multiple countries has declined to 42%, while trust in news found on social media has declined to 23% (Newman et al., 2019). Trust in the CDC has also declined since the beginning

of the pandemic (Pollard & Davis, 2021). This decline in trust suggests that individuals may not comply with recommended protective actions provided by news anchors, public officials, or subject-matter experts during disasters or emergencies, particularly when it is disseminated through social media. The decreased trust in media is concerning since these examples have all been primary information sources during COVID-19 and are often primary sources of information during other types of disasters.

Situational factors such as cues of danger and environmental warnings can influence protective action behavior (NRC, 2006). The Protective Action Decision Model (PADM) suggests that individuals perceive warnings from a variety of environmental and social cues that can influence protective action decisions (Lindell et al., 2015). Sights, smells, and sounds are examples of environmental warnings that influence protective action behavior (Lindell et al., 2017). Social contexts such as discussions with family or friends via telephone, face-to-face conversations, and even media can also influence protective action behavior (Lindell et al., 2017). Media dependency has been found to influence individuals' behavior (Ball-Rokeach et al, 1984; Kim & Jung, 2017; Skumanich & Kintsfather, 1998), which supports the concept that social contexts play a role in protective action decision-making. While media has been found to influence protective action behavior, there are usually other factors involved. For example, Verroen et al. (2013) found that the messages with more information were more likely to influence protective action behavior. Jiang et al. (2021) found that trust was a factor in media influence on protective action behavior during the early stages of the COVID-19 pandemic. Examining if media dependency has an influence could therefore provide more insight into the protective action decision process during disasters.

All of the aforementioned factors that can influence individuals' decision-making processes regarding protective actions during times of disaster reveal the complexity of human behavior. The COVID-19 pandemic is novel and has provided a new set of challenges for emergency managers, public officials, news anchors, and subject-matter experts. While communication challenges during a disaster are not new, the circumstances surrounding COVID-19 are. The complexity of communicating during a pandemic, with conflicting information dissemination along with the politicized nature of the event, created unique challenges for those responsible for communicating about the virus. Exploring individuals' behavior and how mass media and media personalities influenced knowledge, attitudes, and behavior can help researchers and professionals better understand how to improve response to future disasters in the context of crisis communications.

Purpose

The purpose of this study is to examine individuals' behavior along with the role of mass media and media personalities. The current study sought to investigate if mass media and media personalities played a role in influencing individuals' thoughts, attitudes, and behaviors regarding protective actions during the COVID-19 pandemic and, if so, how that influence affected individuals' thoughts, attitudes, and behaviors. Specifically, did mass media influence individuals' thoughts and attitudes toward COVID-19, and therefore influence their behaviors concerning protective actions during the COVID-19 pandemic? Also, of interest is whether media dependency, *parasocial relationship,* or a combination of both have influenced attitudes, thoughts, and behaviors. Parasocial relationship (PSR) is a one-sided relationship between a viewer and a media personality (Horton & Wohl, 1956). Parasocial relationship has been found to influence behavior and decisions outside the viewing time, which could play a role in

individuals' behavior during the COVID-19 pandemic. This research is grounded in theories regarding communication, mass media, and risk perception and how these factors manifest in the COVID-19 context.

Relevance and Importance

During the COVID-19 pandemic, many individuals accessed information and data about COVID-19 through mass media, including television, social media, radio, podcasts, and digital articles. Individuals often prefer using a specific media platform to access information and news (Ball-Rokeach & DeFleur, 1976). Media dependency theory (MDT) assumes that when individuals spend more time on a specific media platform, they will become more dependent on that platform (Ball-Rokeach & DeFleur, 1976). The theory also assumes that during ambiguous times, individuals are more prone to use media platforms that they are already dependent on to "solve" the ambiguity (Ball-Rokeach & DeFleur, 1976). According to MDT, since the COVID-19 pandemic created ambiguous times, individuals likely used media platforms that they were already dependent on to access information and news about COVID-19. Studies have found that media dependency can influence individuals' behavior (Alcañiz et al., 2006; Skumanich & Kintsfather, 1998). Behaviors found to be influenced by media dependency include shopping (Alcañiz et al., 2006; Skumanich & Kintsfather, 1998), social behavior (Kim & Jung, 2017), and voting decisions (Davies, 2009). This suggests that other behaviors could be influenced by media dependency. Utilizing MDT, this study seeks to determine whether media dependency could predict individuals' thoughts, attitudes, and behaviors regarding protective actions during COVID-19.

Individuals can develop parasocial relationships with individuals on media platforms, which has been found to influence trust in past studies (Chung & Cho, 2017). Parasocial

relationship is a theory that assumes individuals develop a one-sided relationship with media personalities (Horton & Wohl, 1956). This study seeks to discover if PSR also played a role in influencing individuals' thoughts, attitudes, and behaviors during the COVID-19 pandemic.

Mass media continuously reported developing information and news about the pandemic through all media platforms (Ufuophu-Biri & Bebenimibo, 2021). However, there was conflicting information disseminated through mass media sources (Ufuophu-Biri & Bebenimibo, 2021). The conflicting information disseminated by various individuals and agencies complicated the response to COVID-19 and influenced individuals' thoughts, attitudes, and behaviors in the process (Kim & Tandoc, 2021: Nagler et al., 2020). This resulted in a lack of trust and compliance with recommended protective actions.

There are other factors that could influence compliance with recommended protective actions during the COVID-19 pandemic. Age has been found to play a role in compliance with protective actions in past studies (Stokes & Senkbeil, 2017). There is no currently available research on the behavior in generational cohorts during COVID-19 in relation to protective actions. While there is a wide range of literature on generational cohort differences and preferences in communication studies (Belhadjali et al., 2016; Newman et al., 2019), there is scarce research in generational cohort studies within the emergency management and crisis communication fields. A majority of studies that focus on generational cohorts focus on one or two generations. This study sought to examine the four major generational cohorts: Baby Boomers, Generation X (gen X), Millennials, and Generation z (gen Z). The current study investigated if there were variances in thoughts, attitudes, and behaviors between the generational cohorts during COVID-19. The findings from this study can contribute to the body of knowledge on generational cohorts and improve future preparedness efforts for specific age

groups. However, the findings from the current study are not limited to emergency management or crisis communication fields. The findings could provide useful information for any discipline interested in generational cohort attitudes, behaviors during disasters, or communication preferences. Exploring the role of mass media and media personalities in influencing thoughts, attitudes, and behaviors during a global pandemic can contribute to public health studies for future public health events. The interdisciplinary nature of this study could contribute to many fields in both research and practice. This study sought to fill the disaster research gap on knowledge about individuals' thoughts, attitudes, and behaviors during a global pandemic.

Overview of Methodology

The methodology selected for the current study was a quantitative approach. A quantitative approach was selected based on the research questions developed for this study. Also, a majority of studies examining both media dependency and parasocial relationship (PSR) are quantitative in nature (Alcañiz et al., 2006; Grant et al., 1991; Ha et al., 2013; Sherman-Morris et al., 2020). The population of interest was Arkansas residents. The population of interest was selected because the state of Arkansas is comprised of diverse geography, industries, races, and ages (Drummond & Graff, 2021). Arkansas is quite complex as the state overlaps multiple geographical and cultural zones in the United States. Arkansas is located in the central, southern part of the United States and has a history of challenges in navigating the competing cultural and regional affiliations (Encyclopedia of Arkansas, 2020). The northwestern part of Arkansas mirrors a midwestern culture mixed with a melting pot of international cultures due to the multiple international businesses with home offices in the Northwest Arkansas region. This region has a reputation for being more progressive and diverse compared to other regions in the state. The North Central region is located in the Ozarks and embraces traditional Ozark culture

where old “hill country” music and folklore can be found (Arkansas Public Broadcasting System [Arkansas PBS], n.d.; Encyclopedia of Arkansas, 2020); this is a culture that extends up into Missouri. The northeastern region of Arkansas is located in the Mississippi Delta, and its primary industries are agriculture and manufacturing due to its rich and fertile soil (Arkansas PBS, n.d.). This region of Arkansas is right next to Tennessee and Mississippi where, the culture transcends state lines. Central Arkansas is associated with the capital of Arkansas, Little Rock. It is also home to multiple corporations, and Amazon recently announced plans to open a 1-million-square-foot fulfillment center in Little Rock (Oman, 2020). The southern part of Arkansas holds more “Deep South” values and is located next to Louisiana and Texas. Texarkana, a city that is considered the gateway to the southwestern part of the United States, is located on the Arkansas–Texas state line and proudly identifies with having a southwestern flair (Encyclopedia of Arkansas, 2020). The South Central and Southeast portions of the state have a rich heritage of blues music, artists, and hunting (Encyclopedia of Arkansas, 2020). The many cultures of Arkansas can be found in neighboring states or regions. Due to the diverse culture, the findings from this study could potentially be applied to multiple cultures within the surrounding states and regions. This could be useful when planning for multiple regions in the future regarding communication strategies during disasters or public health emergencies.

The selected sample type was a convenience sample, which created challenges and limitations to the study. However, in the unique circumstances of COVID-19, a convenience sample was considered to be the most appropriate to collect time-sensitive data, also known as perishable data (Institute of Medicine, 2015; Norris, 2006). While no true inferences could be made due to the sampling method selected (Mitchell & Jolley, 2009), statistical tests were used to analyze the data. While there were limitations to the selected methodology and design, there

are benefits to utilizing this approach, which will be discussed further in depth in later chapters. The instrument selected for the current study was an online questionnaire utilizing measures found reliable and valid in past studies (Auter & Palmgreen, 2000; Grant et al., 1991; Loges & Ball-Rokeach, 1993; Sherman-Morris, 2006; Sherman-Morris et al., 2020). The instrument is believed to be appropriate since the measures and instruments have been utilized in past studies. The instrument will be discussed in more detail in the methodology chapter. All methodological challenges and strategies to mitigate the challenges will be discussed in Chapter 3.

Key Terms

The following terms are defined for use in the study:

Affective Effects: The impact of media messages on an audience's feelings and emotional responses (Ball-Rokeach & DeFleur, 1976, p. 14).

Behavioral Effects: The impact of media messages on an audience's behavior or action (Ball-Rokeach & DeFleur, 1976)

Cognitive Effects: The impact of media on information seeking in order to gain knowledge or resolve ambiguity in order to understand an event that has occurred (Ball-Rokeach & DeFleur, 1976).

Dependency: A relationship in which the satisfaction of needs or the attainment of goals by one party is contingent upon the resources of another party (Ball-Rokeach & DeFleur, 1976).

Mass Communication: The process of using mass media to communicate to mass population(s) (Potter, 2013).

Mass Media: Communication channels and mediums used to disseminate information to mass populations (Potter, 2013).

Media Dependency Theory (MDT): A systematic approach to the study of effects of mass media on audiences and of the interactions between media, audiences, and social systems (Ball-Rokeach & DeFleur, 1976).

Media Effects: Indirect and direct cognitive, affective, and behavioral changes that occur in individuals and society that may be influenced by mass media (Tsfati & Cohen, 2013).

Parasocial Interaction Theory (PSI): A psychological relationship experienced by members of an audience in their mediated encounters with certain performers in the mass media, particularly on television (Horton & Wohl, 1956).

Parasocial Relationship: A construct quantifying the one-sided feelings of friendship with a media personality (Sherman-Morris et al., 2020).

Organization of the Dissertation

This study seeks to examine if mass media influences individuals' thoughts, attitudes, and behaviors. The dissertation is organized as follows:

Chapter 1, the current chapter, provides an introduction to the study and describes an overview of the dissertation. Chapter 1 includes the problem statement, discusses the purpose of the study, describes the relevance and importance of the research problem, provides an overview of the selected methodology, and defines key terms. Chapter 2 reviews foundational and current literature on relevant topics and provides a background on this work. Chapter 2 also provides a brief historical perspective on the evolution of mass media research and theories. Chapter 2 concludes with the conceptual framework for this study, proposing the theoretical and methodological basis for how the research will be conducted. Chapter 3 discusses the design of the current study and describes the methodology selected and the reasoning behind the selection. Chapter 3 also discusses the sample and sampling methods chosen. The instrument, measures,

and data analysis plan are also discussed in Chapter 3. The chapter concludes with limitations of the study. Chapter 4 provides the results of the statistical tests. The chapter also discusses which hypotheses were supported and not supported. Chapter 5 concludes the dissertation with a discussion on the interpretations of the findings, the limitations, and implications for practice and future research.

Chapter 2: Literature Review

Exploring if and how mass media has influenced individuals' thoughts, attitudes, and behaviors during COVID-19 can be useful to researchers in the communication, emergency management, marketing, and psychology disciplines. Better understanding of how attitudes and behaviors are shaped through messages disseminated by mass media during times of disaster could provide useful information to multiple disciplines. Researchers can improve future studies on the findings, and professionals can alter risk communication plans and public health campaign strategies for future events. Communicating effectively is critical during crises and disasters. However, even if communication is effective, it cannot guarantee a desired behavioral response (Floroiu & Silves, 2003). This has been proven in past risk communication studies (Lin & Bautista, 2016; Lindell et al., 2017; Liu et al., 2016) and was evident during the COVID-19 pandemic with the mixed behavioral decisions regarding protective actions (Niu et al., 2021; Zhao et al., 2020). While risk communicators specifically try to convince individuals that the risk is real and explain how to protect oneself from the risk, communication via mass media serves a variety of purposes. Mass media, however, has evolved to play a critical role in risk communication (Floroiu & Silves, 2003) through information dissemination. The media arguably played a prominent and important role conveying the risks related to COVID-19. Examining their role in the risk communication process, along with if and how they influenced behaviors, is important for future risk communicators and risk communication research.

Floroiu and Silves (2003) argue that risk communication has begun to become a function of mass media. However, there are limited studies combining the two disciplines, particularly within the disaster context. While *media dependency theory* (MDT) assumes that individuals become more dependent on media platforms during crises or disasters, less research has focused

on disaster or crises events as compared to other areas. A majority of the MDT literature focuses on television shopping (Alcañiz et al., 2006; Grant et al., 1991), fictional scenario crises (Charanza & Naile, 2012; Loges, 1994), and dependency on different media platforms (Ha et al., 2013; Jiang & Li, 2018). However, a small subset of literature has focused on *media dependency* in public health crises (Hu & Zhang, 2014; Lee & Choi, 2018; Tai & Sun, 2007), which provides context for this study.

Parasocial relationship (PSR) literature focuses mostly on exploring the one-sided relationship between individuals and celebrities (Chung & Cho, 2017; Ledbetter & Redd, 2016), fictional and nonfictional TV media characters (Auter & Palmgreen, 2000; Rubin et al., 1985; Schmid & Klimmt, 2011), political candidates (Cohen & Holbert, 2021; Gabriel et al., 2018), and social media influencers (Lou & Kim, 2019; Tolbert & Drogos, 2019). There is very little research that focuses on *parasocial relationships* within a disaster or crisis context, suggesting an opportunity for this study to present novel findings. This chapter explores previous findings within mass media, MDT, and PSR. This chapter also examines media effects and how they influence individuals' thoughts, attitudes, and behaviors. This relates to the study as the decision-making processes and behaviors regarding COVID-19 protective actions were examined.

The purpose of reviewing literature is to conduct background research to discover existing literature on the themes and topics within this study. According to Jensen (2012), foundational literature should be grounded in the findings of original research that has been published in peer-reviewed journals, books, or book chapters. This study drew from all of the aforementioned sources, including gray literature from governmental agencies and research organizations. A systematic approach was utilized to search for studies and reports on relevant topics to this study. Online library databases were used, including ProQuest, JSTOR,

Communication & Mass Media Complete, Communications and Mass Media Collection, EBSCO eBooks, EBSCOhost, IEEE Computer Society Digital Library, PBS Video Collection, Public Health Database, PubMed, Statista, and Wiley Online Library. Online search engines including Google and Google Scholar were also used. Key words and phrases used individually or in various combinations were: *media dependency theory, media dependency, parasocial relationship, parasocial interaction, disaster, COVID-19, public health, pandemic, emergency management, social media, mass media, mass communication, protective actions, preventive measures, generational cohorts, generations,* and *compliance*. All studies reviewed were in English and peer-reviewed and/or scholarly.

This study examined how *media dependency* and *parasocial relationship* (PSR) influenced protective action behavior among generational cohorts during the COVID-19 pandemic. Chapter 1, the introduction, presented the issue and provided an overview of the study. This chapter will discuss a history of mass media research and its evolution to lay the foundation for the theories selected for this study. It will explore the previous research, which includes *media dependency theory* (MDT) and *parasocial relationship* (PSR). This chapter will also explain and discuss generational cohorts as an additional variable of interest, including the rationale for exploring the differences between them. It proposes a conceptual framework, along with methodological challenges and potential solutions.

Previous Research in Mass Media and Mass Communication

The influence of mass media on the public has been an interest for researchers from several fields. Mass media first began to be examined in research after World War I and evolved throughout the decades (Glander, 2000). Newspapers, radio, and films were the first forms of mass media (Glander, 2000), but television changed the landscape as it became a household

staple beginning in the 1950s (Wood, 2015). Mass media and mass communication are subfields of communication studies and are often regarded as ambiguous terms that researchers struggle to properly define. Scholars argue that the research of mass communication and mass media is unsystematic and enjoys a widespread currency that is complex and even contradictory at times (Bennett, 1982; Lowery & DeFleur, 1988; McQuail, 1984; Potter, 2013). Mass communication and mass media have been studied by many fields, including communication, psychology, sociology, political science, and marketing. While many disciplines have studied the two terms in a broad context, it is vital to identify the difference between the two terms in order to provide operational definitions for the current study.

Mass communication and mass media are often used interchangeably in research (Wright, 1986). However, there have been attempts to identify a difference between the two terms. Mass communication has been viewed as a process, while mass media has been identified as the channels of information dissemination (Potter, 2013). Some argue that mass communication cannot happen without mass media since mass media is the necessary medium to disseminate mass communication (Potter, 2013). Others argue that the concept of mass media has become more blurred with the development of new technologies. Even though an individual disseminates a message on social media to their followers in an interpersonal manner, it can be viewed by the masses, which blurs the lines between media and mass media in communication (Jenkins, 2006; Nayar, 2010). One of the earliest concepts of mass media viewed the term "mass" as having no social organization or tradition, with a lack of customs, rules, or rituals (Blumer, 1939). This concept of mass communication was that messages were processed the same by everyone in a simple manner. However, this theory was proven wrong as people do not react or process messages the same way, even when they are disseminated through mass communication (Cantril

et al., 1940; Freidson, 1953). For the purpose of this study, mass communication is defined as the process of disseminating information to a mass audience through a mass media platform (Potter, 2013). Mass media is operationalized as a medium that uses standardized practices to mass-produce messages and disseminate them in a way that is available to the public. Both definitions are taken from Potter's (2013) attempt to provide working definitions of mass media and mass communication by examining the multiple definitions and perspectives of the term. In his work "Synthesizing a Working Definition of Mass Media", Potter (2013) discusses the historical elements of both definitions and argues that a clear conceptualization of both concepts is necessary to the development of the field. Clearly outlining a difference between the two terms also provides important distinctions for this study.

Mass Media Theories

Early theories of mass media and mass communication are grounded in the concepts of propaganda and influence. The campaigns and propaganda disseminated between the two world wars and the Cold War helped established mass communication and mass media research as its own discipline (Bineham, 1988; Glander, 2000; Severin & Tankard, 1979). One of the original theories in mass media is the direct effects model, also known as the hypodermic needle theory or magic bullet theory. The hypodermic needle theory assumes that audiences of mass media passively accept messages disseminated by mass media and exhibit predictable behavior and responses to those messages (Bineham, 1988; Sana, 2015; Schramm, 1971). The term "needle" derives from the idea that messages disseminated by mass media are injected into the minds of the public (Sana, 2015). This model assumes that mass communication would be more influential than other cultural influences such as family and friends and tied to the origins of mass communication studies on propaganda and influence. This theory is flawed in that it

assumes that all individuals are irrational and are easily influenced. As newer theories emerged, they addressed the concept that individuals may draw on past experience or their own expertise to form an opinion or shape their behavior after receiving a message from mass media.

The limited effects theory, first introduced by Paul Lazarsfeld assumes that the media cannot directly change individuals' beliefs, attitudes, or behaviors. This theory assumes that individuals interpret mass media messages in accordance with their existing attitudes and beliefs (Lazarsfeld, 1948). However, the theory fails to consider that media effects vary depending on conditions and that the level of media influence can range from moderate to high (Chaffee & Hochheimer, 1985). As the media gains a more central role in the public's life, the more influential it can can become.

Ball-Rokeach and DeFleur (1976) introduced *media dependency theory* (MDT), which combines psychoanalysis, uses and gratification theory, and social systems theory to create one theory surrounding society's dependency on media. This theory is one of the few in mass media that views an audience as having an active role in the communication process. An individual chooses their preferred media source based on economic conditions, society, and culture (Ball-Rokeach & DeFleur, 1976). MDT assumes that individuals become more dependent on a media platform if the medium fulfills their needs or goals. The theory also states that individuals reconsider their attitudes, beliefs, and behaviors during periods of strong social change, conflict, or other ambiguous times, which, in turn, increases their dependency on the media (Ball-Rokeach & DeFleur, 1976). There are identified limitations to this theory. Surprisingly, one of the theory's biggest critics was one of its designers: Sandra Ball-Rokeach. She argued that individuals can obtain information and reach their information goals through other information systems apart from mass media (Ball-Rokeach, 1998). This is probably more relevant today than

in prior decades as there are multiple information sources from which individuals can now access news and other information. However, Ball-Rokeach (1998) did state that the "other" information systems did not exist in a vacuum and were more than likely ultimately tied to "the media system" as a whole.

Despite the identified limits of the theory, MDT is useful for this study considering two of its basic propositions: (a) the higher number of social functions a medium provides for an audience, the greater the dependency and (b) the higher instability and ambiguity of a society, the greater the dependency (Ball-Rokeach and DeFleur, 1976). Many media mediums provide multiple social functions to audiences. The four original mass communication social functions are: surveillance of the environment (i.e., news and current events), cultural transmission (influencing cultural norms), correlation of parts of society, and entertainment (Lasswell, 1948). These four functions are still relevant even with the development of new media technologies.

Social functions may vary among media platforms, particularly during a disaster or crisis. Hu and Zhang (2014) examined media dependency during the H1N1 flu crisis and found that medium choice varied as a function between the different stages of the crisis. They found that television was more effective in prodromal and recovery phases, while the influence of radio lost its influence as time progressed in the crisis (Hu & Zhang, 2014). The researchers propose that future studies include social media in similar research as the data was collected in 2009 before social media had become popular in China. The results of this study suggest that some mediums may influence higher levels of dependency based on which social functions they fulfill. This could be useful to study in relation to media dependency and how it varies between generational cohorts since media consumption behavior varies between age groups (Newman et al., 2019). Since the current study's purpose is to examine the variances in preferred media among

generational cohorts, MDT seemingly is the best fit to examine mass media and the role it plays in cognitive, affective, and behavioral influence.

Media dependency theory (MDT) has underlying assumptions that fit into the COVID-19 pandemic context. This theory assumes that information is a power source (Ball-Rokeach, 1998). Information is necessary for goal attainment and for human survival within societies. MDT theorizes that the more exclusive control over information sources required to attain goals, the more power is accrued from the control (Ball-Rokeach, 1998). The development of "Big Tech" has centralized control over information and media (Vigna, 2019). Big Tech refers to major technology companies such as Amazon, Facebook, Google, Twitter, and Apple (Rosencrance, 2021), all of which own major social media platforms and/or other news sources. Many Americans turn to social media for news (Newman et al., 2019), which suggests that "Big Tech" has a centralized control over information, particularly with the recent accusations of biased and censored information during COVID-19 and the recent political climate. Another assumption of MDT is that the environment influences individuals' goals in information seeking (Ball-Rokeach, 1998). During ambiguous times such as civil unrest or changing conditions, dependency will become more intense, particularly when a media system is central to everyday living. America witnessed both civil unrest and changing, ambiguous conditions in society during the COVID-19 pandemic in 2020 and 2021. This suggests that MDT is an appropriate theory for the current study due to its relevancy.

Parasocial relationship (PSR) was selected because media personalities currently have more influence compared to previous times throughout history. Celebrities, news anchors, public officials, and social media influencers all have large followings on a broad range of media mediums. Influencers are individuals on social media who have a large number of followers or

who have a significant influence in both social media exposure and consumer persuasion (Hu et al., 2019). These influencers have been found to influence followers' behavior when promoting products and lifestyle behavior (Jin et al., 2019). Recent studies have found that 40% of Twitter users purchased products due to a tweet from an influencer (Geyser, 2021), and 60% of YouTube subscribers are influenced to purchase products based on advice or reviews given by their favorite influencer (Geyser, 2021). This suggests that PSR could also have a role in influencing COVID-19 behavior. Public officials and news anchors also have large followings on social media, which indicates that perceived relationships between them and their followers might develop. There are a limited number of studies focused on politicians and PSR. However, some studies have found that the intensity of PSR with presidential candidates is an important predictor of voting support (Cohen & Holbert, 2021). Other studies have found that increased interactivity, including exposure on Twitter, is vital in creating PSR with political candidates (Lee, 2013; Lee & Jang, 2013). These studies indicate that public officials can develop PSR with constituents. Public officials have been very active on all media mediums during COVID-19 to promote their views on the virus, which could strengthen existing PSRs or develop new PSRs with constituents. Selecting PSR to examine the role of media personalities, including public officials, in influencing the public's thoughts, attitudes, and behaviors during COVID-19 is considered appropriate for the current study.

Understanding mass media's relationship with individuals is vital in any study examining behavioral influence from mass media, including taking protective actions. Communication research has evolved over the past several decades and covers a broad scope of foci. Communication research, particularly focusing on mass media, was rarely conceptualized as a distinct area of study until World War I and continued to evolve through World War II and the

Cold War (Glander, 2000). The expansion of radio in typical households expanded drastically between 1922 and 1940 (DeFleur & Ball-Rokeach, 1989) and further established the discipline of mass media. This expansion instigated research on the effects that radio had on social changes and behavior. The ideologies and theories that developed in mass communication studies between the two world wars established a wide variety of perspectives that focused on the role, legitimacy, and effects of mass media along with the relationship with the public (Glander, 2000). The social and cultural changes experienced by the public at the time of this evolutionary period in mass media can be compared to the current social and cultural changes experienced today in relation to the popularity of social media and current social changes, while the historical context of the two world wars and Cold War can be compared to today's COVID-19 pandemic. These comparisons make this study all the more relevant and prove the continuing need for studies focused on the effects of mass media. The next sections examine specific mass media theories in depth, including the role mass media has played in influencing individuals' beliefs, behaviors, and decisions in disaster contexts.

Media Dependency Theory

Media dependency theory (MDT) was first introduced by Ball-Rokeach and DeFleur in 1976. Drawing on already established theories, MDT examined the effects of mass media on audiences along with the interactions between the mass media, an audience, and social systems. The theory views dependency as a relationship in which one party's needs or goals are fulfilled by another party's resources (Ball-Rokeach & DeFleur, 1976). There are three distinct goals: understanding, orientation, and play (Ball-Rokeach & DeFleur, 1976). The goal of understanding describes the need of individuals to gain an understanding of themselves and their social environment (Carillo et al., 2017). The orientation goal is tied to individuals' behaviors and

decisions, as well as guidance for how to interact with others in society (Carillo et al., 2017). The goal of play relates to the media's role in providing entertainment and relaxation to reduce stress (Carillo et al., 2017). These three goals are umbrella goals for six levels of dependency, which can be found in Table 2.1. The goals of understanding and orientation have proven to be very important during times of uncertainty and ambiguity (Lowrey, 2004). Past studies have found that during times of crisis, dependency increases for the goals of understanding and orientation (Ball-Rokeach et al., 1999; Hirschburg et al., 1986; Loges, 1994). COVID-19 provides a unique context to analyze if there is a difference between the three goals during times of uncertainty.

Table 2.1

Typology of Individuals' Media-System Dependencies

	Understanding	Orientation	Play
Personal	*Self-understanding*: Basic understanding of themselves	*Interaction orientation*: To make a behavioral decision	*Solitary play*: For relaxing and releasing stress when individuals are alone
Social	*Social understanding*: Understanding of social environment	*Action orientation*: To have guidance for interacting correctly with other people	*Social play*: For relaxing and releasing stress together with other people

Note: Adapted from "The Origins of Individual Media-System Dependency: A Sociological Framework," by Ball-Rokeach, 1985, *Communication Research, 12*(4), p. 496.

These goals and levels of dependency may vary among individuals, dependent on how they utilize media the most to fulfill certain goals. If an individual wants to understand and be

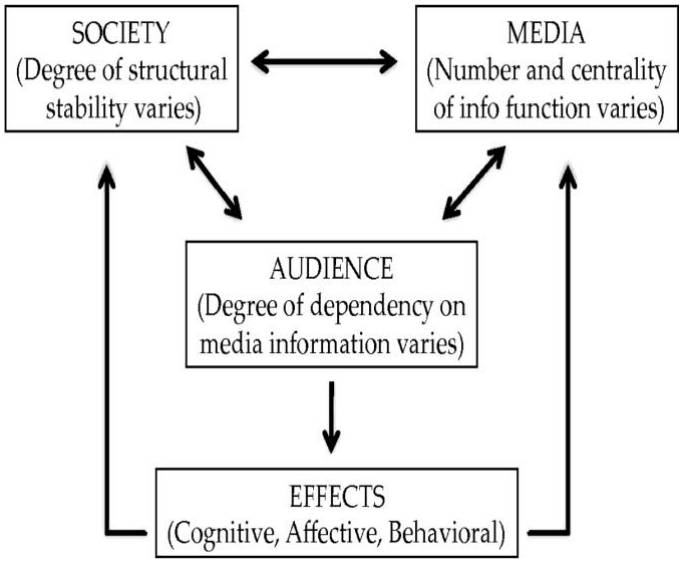
informed about a political candidate's stance on political issues, then they may be more dependent on television as it has been found that television is the preferred media platform for evaluating and understanding political candidates (Davies, 2009). Individuals might be more dependent on social media if they seek to create and share information (Kim et al., 2015). Individuals' goals will play a role in which media medium they become dependent on. Ball-Rokeach (1985) argued that in a situation where a media system has "exclusive control over dissemination of certain message forms, then to the extent that individuals have goals that require access to that resource they must become dependent on the media" (p. 489). One could argue that mass media has exclusive control over the dissemination of certain message forms, and therefore every individual, at some level, is dependent on the media.

Mass media is utilized by many to fulfill all three goals (Jiang & Li, 2018). This has become more prominent as social media and online media have evolved. Social media and online media are able to fulfill multiple types of goals for individuals, which can increase their dependency (Kim & Jung, 2017; Skumanich & Kintsfather, 1998). As seen in Figure 1.1, the centralization of media, along with social instability, increases media dependency and influences cognitive, affective, and behavioral changes. While Facebook cofounder Mark Zuckerberg has stated that social media has led to the decentralization of information, others argue that "Big Tech" has centralized power over information and media (Vigna, 2019). Big Tech refers to major technology companies such as Amazon, Facebook, Google, and Apple (Rosencrance, 2021). Many Big Tech companies own media platforms or are media mediums themselves, which indicates some form of centralization in the media system. While social media and digital media do allow individuals to turn to alternate options for information besides the mainstream news, these alternate information sources could still be arguably mass media since they are available on

social media platforms and digital news apps or websites, which indicates a centralization of media. This centralization aligns with MDT and further proves the usefulness of the theory for the current study.

Figure 1.1

Media Dependency Model



Note. From "A Dependency Model of Mass-Media Effects", by S. J. Ball-Rokeach and M. L. DeFleur, 1976, *Communication Research, 3*(1), p. 8.

Besides centralization of information and goal attainment, Ball-Rokeach and DeFleur (1976) proposed that other factors such as social systems, viewing time, and interpersonal networks have been found to be antecedents to dependency (Ball-Rokeach, 1985). Media dependency theory is largely founded in a social system's stability level, which is why this theory fits in so well with the current study. COVID-19 created a lot of social instability and ambiguity due to the novelty of the virus and it being the first worldwide pandemic of this level since the 1918 Spanish Flu. Media dependency theory also theorizes that the more an individual

or audience depends on a medium, the more they use the medium (Ball-Rokeach & DeFleur, 1976). While social media and other mediums are utilized frequently, the COVID-19 pandemic forced more individuals to depend on mass media to fulfill information needs and goals due to quarantine, isolation, and social distancing. Interpersonal networks are another antecedent to dependency (Ball-Rokeach, 1985), and it has been found that there is a significant relationship between *media dependency* and *parasocial interactions* when people experience loneliness (Rubin et al., 1985). With the mandatory lockdowns, social distancing, quarantining, and isolation that all have taken place since March 2020 in the United States, many people have lost their interpersonal network, or it has been altered (Hwang et al., 2020; Zhu et al., 2021). All of these factors indicate that MDT is an appropriate theory for the current study due to the current context of COVID-19 and its societal effects in relation to mass media.

Media Dependency Theory in Disasters

Mass media's role in covering disasters and communicating about risk or hazards has been studied extensively. The media plays an important role in informing the public about disasters, whether it be warning of predicted disasters or providing information on current or past disasters (National Research Council, 2006). Some argue that the media displays bias by ignoring certain disasters and sensationalizing others (Singer & Endreny, 1994). It is also argued that the mass media plays a significant role in promulgating disaster myths (Tierney et al., 2006). How the media reports a disaster can shape the public's perception about the event or risk (Singer & Endreny, 1994).

While there is an abundant amount of literature on communicating during a crisis or disaster, less research has been conducted on media effects regarding *media dependency* during

disasters. The degree of media dependency was found to be a significant predictor of cognitive and behavioral effects after the 9/11 terrorist attacks (Lowrey, 2004). Beaudoin (2007) examined media effects on public safety behavior after Hurricane Katrina and found that mass media campaign exposure did influence safety behavior. Media dependency was not measured in the study although it did provide a basis for it. Loges (1994) found that media dependency intensifies when one perceives their social and/or natural environment to be threatening. These findings can translate to a disaster event such as COVID-19. These findings are also supported by the study that examined the 9/11 terrorist attacks. The study found that individuals who had a greater perception of threat from the 9/11 terrorist attacks showed greater dependency on mass media (Lowrey, 2004). This demonstrates how mass media can influence individuals' attitudes, beliefs, values, and behaviors during times of ambiguity and also establishes a need for media dependency to be examined during a pandemic and other disasters.

Since *media dependency theory* (MDT) does focus on times of ambiguity, it seemingly fits in the current study, which examines mass media's influence on behavior during COVID-19. The relationship between individuals and media increases during crises and disasters as individuals need information to make decisions and form opinions on the event (Muñiz, 2020). While health crises do not happen as frequently as other high-risk events, there are studies on how mass media can affect individuals during these events in relation to media dependency and media effects. Studies have found that individuals have an increased dependency on the media for information during public health crises such as the COVID-19 pandemic (Casero-Ripollés, 2020: Huynh, 2020). Melki et al. (2020) examined the relation between media exposure and health behavior during the COVID-19 pandemic and found that increased media exposure did positively relate to compliance with protective actions. While the authors did not specifically use

MDT in their study, their findings demonstrate that media influences can occur during a public health crisis, specifically COVID-19.

Parasocial Relationship

Media personalities are individuals such as actors, athletes, popular political leaders, news anchors, and even fictional characters who can be found on a media platform such as television, plays, radio, or social media (Brown, 2015). Individuals often develop relationships with media personalities who they view or listen to on a media medium. Since the human brain processes media experiences and direct experiences similarly, individuals tend to relate to media personalities the same as if they were real persons in front of them (Kanazawa, 2002). This phenomenon has been examined by many researchers (Auter & Palmgreen, 2000; Chen, 2016; Rubin & McHugh, 1987; Rubin et al., 1985), but was initially introduced by Horton and Wohl in 1956. The one-sided relationship that individuals develop with a media personality has been termed *parasocial interaction* (PSI) or *parasocial relationship* (PSR) (Horton & Wohl, 1956; Rubin & Step, 2000; Sherman-Morris et al., 2020). There are predictors of PSI/PSR, such as attractiveness (Moyer-Gusé, 2008), directly addressing the television (Schramm & Hartmann, 2008), cognitive empathy (Tsao, 1996), and personal similarities (Schmid & Kllimmt, 2011). While predictors play an important role in the understanding of PSI/PSR, the consequences of PSI/PSR also help researchers better understand the phenomenon. The development of PSR can potentially influence individuals' behavior and attitudes outside the viewing process. The adoption of social norms (Hartmann & Goldhoorn, 2011), behavioral intentions (Yuksel & Labrecque, 2016), and attitude changes (Sood, 2002) have all been found to be influenced by PSI/PSR. This suggests that media personalities who promote COVID-19 preventive measures could influence individuals who have developed a PSR with them.

Parasocial interaction and parasocial relationship have traditionally been used as interchangeable terms, but recent research on the theory has defined a difference between the two. Parasocial interaction has been identified as the viewers' one-sided perception of the media personality during viewing or listening (Hartmann & Goldhoorn, 2011; Stever, 2017). This occurs when an individual is exposed to or interacts with a media personality through a communication medium (Horton & Wohl, 1956), which can happen in a singular exposure. While PSI is limited to the length of media exposure (Schramm & Hartmann, 2008), PSR occurs over multiple exposures to evolve into a relationship that can influence future behavior and motivations (Schramm & Hartmann, 2008; Sherman-Morris et al., 2020). Parasocial relationship is viewed as an ongoing process and includes affective and cognitive responses that can extend past viewing time (Hartmann & Goldhoorn, 2011; Stever, 2017). Parasocial interaction leads to parasocial relationship, and some argue that both processes can influence alterations in behavior and attitude (Sood, 2002; Stever, 2017). However, PSR has been found to span past the viewing (Liebers & Schramm, 2019) and also to be a mediator of trust (Chung & Cho, 2017). This suggests that PSR could be more influential on individuals' behavior and could be more relevant to study in today's environment.

Parasocial Relationship and Social Media

Parasocial relationship has traditionally been examined through media personalities on television and radio, but recent studies have examined the relationships developed between media personalities on social media and their audience (Chen, 2016; Chung & Cho, 2017; Gabriel et al., 2018). Mass media is now multidimensional and is no longer limited to traditional communication mediums such as television or radio. Many media personalities, such as news

anchors and even elected officials, have social media accounts to connect with their audiences beyond traditional media platforms (D'Antonio, 2019; Finneman et al., 2019). This makes media personalities more accessible than ever before as followers are able to like, dislike, comment on, or share their posts. With the continuous access to media personalities and public officials through these platforms, examining PSR may be more appropriate to study as individuals are exposed to media personalities for longer periods of time.

Parasocial relationship extends beyond a single viewing (Dibble et al., 2016) and can be maintained through repeated exposure to a media personality on platforms such as television (Gabriel et al, 2018) or social media (Iannone et al., 2018). News anchors and officials are featured on television on a regular basis but also constantly share updates, information, and more personal content with their followers on social media. Media personalities who speak directly to the screen (such as news anchors) have been found to have higher rates of PSR (Ballantine & Martin, 2005; Hartmann & Goldhoorn, 2011; Schramm & Hartmann, 2008). Methods such as personalizing the message, establishing eye contact with the viewer, directly addressing the viewers, using a subjective camera angle (the camera lens serves as the viewers' eyes) are all used to support the perceived interactivity between media personalities and viewers (Labrecque, 2014; McMillan & Hwang, 2002; Song & Zinkhan, 2008). This could increase PSR between individuals and media personalities compared to fictional characters who do not break the "fourth wall" to directly address the viewer (Auter & Davis, 1991). In addition, television show or movie characters are temporary as they are fictional, while television reporters and elected officials represent themselves and a continuous relationship (Horton & Wohl, 1956). The realistic personae that news anchors and elected officials maintain across multiple

communication mediums has the potential to increase PSR compared to fictional media personalities found on TV shows.

While PSR has been found in past research to influence behavior and decisions through traditional media mediums (Dunn, 2018; Hartmann & Goldhoorn, 2011; Sood, 2002), social media has provided media personalities a more privileged position to shape and influence their follower's beliefs, behaviors, and decisions (Brown, 2015; Paravati et al., 2020). This suggests that PSR could also play a role in cognitive, affective, and behavioral media effects. While social media differs from traditional media in that a bilateral conversation can take place between a follower and media personality, interactions on social media often mirror unilateral conversations (Labrecque, 2014). Studies have found that organizations and media personalities release content and information more often than they interact with followers (Owyang, 2012; Wukich & Mergel, 2015). Individuals are more likely to develop PSR in digital environments compared to interpersonal contact (Jin & Park, 2009). This suggests that the perceived relationship that followers develop more closely mirrors PSR than an actual relationship. Direct access to media personalities' thoughts, feelings, and information provides a sense of familiarity or "knowing" (Dobias, 2017), which can increase PSR. Studies have found that media personalities' messages disseminated on social media can influence offline actions through promoted behavioral *parasocial interactions* (Yuksel & Labrecque, 2016). This suggests that media personalities with a strong PSR with their audience could influence COVID-19 protective actions.

Media Effects

As media dependency theory postulates, media effects can influence an audience or individual and their attitude or behavior (Ball-Rokeach & DeFleur, 1976). Ball-Rokeach et al.

(1984) argued that greater media dependency results in higher levels of attention during media exposure, which results in a greater level of affect regarding the message and its sender(s), which results in a greater potential for media effects. These effects stem from Lavidge and Steiner's (1961) hierarchy-of-effects model that proposes various attitudinal responses. This marketing communication model suggests that a consumer goes through three stages of behavior from viewing a product to purchasing the product (Lavidge & Steiner, 1961). The three phases are: cognitive, affective, and conative (behavioral). This model can be applied to media effects on information disseminated by mass media. Media effects can influence behavior, which has been proven in past studies (Alcañiz et al., 2006; Ho et al., 2015; Muñiz, 2020).

Views of influence have ranged from direct effects (Bineham, 1988; Schramm, 1971) to indirect effects (Holbert, 2005; Lazarsfeld et al., 1948). The direct effects theory, which has already been discussed, assumes that messages disseminated by mass media are directly absorbed into the audience's minds and are highly influential in predicting future behavior. The indirect effects theory states that the effect of one variable on another is mediated by an intervening variable (Holbert, 2005). These intervening variables that influence behavior are often cognitive processes that can include risk perception (Altarawneh et al., 2018; Lindell & Hwang, 2008), past experiences (Weinstein, 1989) and knowledge (Lindell & Whitney, 2000). Examining those mediating variables could provide insight into how mass media and cognitive processes together have played a role during the COVID-19 pandemic. Ball-Rokeach and DeFleur (1976) proposed that higher dependency on media can make media effects even stronger. The COVID-19 pandemic provides a setting in which MDT can be analyzed to determine how these effects play a role in behavior, perception, and decisions during a public

health crisis. The next few sections will analyze the three effects that Ball-Rokeach and DeFleur (1976) included in MDT.

Cognitive Effects

Ball-Rokeach and DeFleur (1976) proposed in their initial paper on MDT that mass media messages can achieve cognitive effects. Cognitive effects are changes in an individual's attitude, knowledge, beliefs, or values influenced by the media (Lavidge & Steiner, 1961). Examining if media dependency played a role in cognitive changes in individuals during COVID-19 could be useful in determining which media platforms to utilize in future public health crises or disasters. There are several examples provided by Ball-Rokeach and DeFleur (1976) as cognitive alteration effects. The first mentioned is the creation and resolution of ambiguity. The researchers argued that during times of ambiguity, such as disasters or social conflict, individuals lack enough information to fully understand the event or determine which interpretation of the event is true (Ball-Rokeach & DeFleur, 1976). Ball-Rokeach and DeFleur (1976) posited that individuals often learn of unexpected events such as natural disasters through mass media. Initial information is often incomplete, which enhances feelings of stress and ambiguity and will more than likely influence information seeking to resolve those feelings. Mass media plays a large role in controlling what information is or is not delivered and how it is presented, which influences the range of interpretations (Ball-Rokeach & DeFleur, 1976).

The second cognitive effect discussed by Ball-Rokeach and DeFleur (1976) is attitude formation. New attitudes are continuously formed as new political figures, media personalities, and social movements emerge. Ball-Rokeach and DeFleur (1976) argued that mass media is not monolithic in its influence on attitudes but does play a role in the attitude formation process.

Social media has allowed mass media to play a larger role in the attitude formation process because political figures, media personalities, and celebrities can now directly communicate to their audience.

Agenda setting is another example provided by the researchers as a cognitive effect. Ball-Rokeach and DeFleur (1976) argued that individuals do not have enough time or energy to form attitudes and beliefs about every single topic. This ties into agenda setting theory, which states that the media can establish a hierarchy of news prevalence (McCombs & Shaw, 1993). Ball-Rokeach and DeFleur (1976) stated that the media filters topics and selectively disseminates information on those topics. Then, the individual will sort through the information to find their interests or concerns based on their social status or personal makeup (Ball-Rokeach & DeFleur, 1976). With the globalization of news along with the worldwide pandemic, agenda setting more than likely played a larger role in individuals' consumption of information.

Affective Effects

Affective effects were also identified by Ball-Rokeach and DeFleur (1976) as possible media effects in MDT. Affective affects influence emotion or feelings (Lavidge & Steiner, 1961) and can be influenced by mass media, particularly when something is sensationalized or overexposed. Ball-Rokeach and DeFleur (1976) provided fear, anxiety, and being trigger-happy as examples of affective effects. This fits in with the COVID-19 pandemic as fear and anxiety were emotions experienced by many during COVID-19 (Jungmann & Witthöft, 2020; Lwin et al., 2020; Sauer et al., 2020). While studies have found that overexposure or prolonged exposure to media can cause a numbing or desensitization effect (Fanti et al., 2009), Ball-Rokeach and DeFleur (1976) argued that prolonged exposure can increase individuals' fears or stress when

they anticipate the worst. The continuous coverage of alarming news on COVID-19 has exacerbated the negative psychological impacts of the pandemic (Mohamud et al., 2021). The overexposure of COVID-19 more than likely played a role in the affective effects of fear and anxiety. Examining if mass media influenced more intense feelings of fear and anxiety could provide insight into how media effects do influence an audience during a public health emergency.

Ball-Rokeach and DeFleur (1976) also proposed morale and alienation as examples of alterations in audience affect due to media messages. The public's sense of collective well-being that promotes society's morale is fragile and relies on successful social relations that cannot be maintained without an effective communication system (Ball-Rokeach & DeFleur, 1976). The isolation and quarantine preventive measures did create feelings of alienation and dampen morale (Hwang et al., 2020; Zhu et al., 2021). The media's bias influenced by political parties during COVID-19 (Zhao et al., 2020) also dampened morale across the country and created feelings of division. Studies conducted during the COVID-19 pandemic have shown that individuals across the world have experienced a decrease in morale and well-being (Kimhi et al., 2020; Vahratian et al., 2021). Researchers Sacerdote et al. (2020) conducted a study examining COVID-19 coverage in national U.S. media during 2020 and discovered that the U.S. media is an outlier and covered COVID-19 in a more negative light compared to international media sources and regional U.S. media. These findings indicate that Americans could potentially experience a decrease in morale if the majority of COVID-19-related news is negative. This example demonstrates how media can influence affective effects.

Behavioral Effects

Influencing an individual's attitudes, beliefs, and emotions can lead to changes in their behavior. Ball-Rokeach and DeFleur (1976) focused on activation and deactivation as behavioral effects in MDT. Activation indicates situations in which an individual behaves a certain way or does something that they would not have done without the influence of a media message (Ball-Rokeach & DeFleur, 1976). These behaviors are often the end result of cognitive or affective effects. Individuals may change their behavior or engage in an issue resolution based on a media message. Ball-Rokeach and DeFleur (1976) theorized that activation is the end product of cognitive or affective effects. Researchers have found that time spent viewing media can influence behavior (Alcañiz et al., 2006; Skumanich & Kintsfather, 1998). Deactivation refers to situations where an individual would have done something but then does not based on media messages (Ball-Rokeach & DeFleur, 1976). Deactivation may occur when media messages create fear, disgust, or indifference about a topic. Ball-Rokeach and DeFleur (1976) provided the example of media disseminating messages that create an affective fear that an economic depression is unavoidable, which leads to deactivation of consumption behavior. The researchers also used political campaigns as an example of deactivation. They wrote that mass media may release messages during the campaign that create disgust or indifference, which in turn creates a deactivation in individuals' intention to vote (Ball-Rokeach & DeFleur, 1976). Deactivation has been examined less compared to activation. It could be argued that not complying with suggested preventive measures during COVID-19 could be a result of deactivation, thus warranting further study.

Media effects on behavior has been a long-studied topic in mass media and other disciplines. There are a variety of ways that media effects can influence an audience or an

individual. Mass media has been found to directly affect candidate preference in presidential elections (Barker & Lawrence, 2006). Behaviors and attitudes examined in the past include presidential candidate preference (Barker & Lawrence, 2006), online and teleshopping behavior (Alcañiz et al., 2006; Priansa & Suryawardani, 2020), evacuation decision (Karaye et al., 2019), and prosocial or antisocial behavior (Greitemeyer, 2011). Health-related behaviors have also been examined in the past. Lin and Lagoe (2013) found that media dependency had a positive influence on college students' vaccination intent during the H1N1 pandemic. Snyder and Hamilton (2002) conducted a meta-analysis of U.S. health-related mass media campaign literature and found that success varied dependent on the behavior targeted. Greater media effects were found for new behaviors such as the seat belt campaign compared to preventing existing problem behaviors such as smoking (Snyder & Hamilton, 2002). However, other studies have found that mass media health campaigns have had no effect on the targeted population. A study examining the effects of a mass radio campaign on family behaviors related to child mortality found no evidence of a mass media effect due to the campaign (Sarrassat et al., 2018). Another study found that an antidrug mass media campaign did not have any positive influence on youth drug-use behavior (Hornik et al., 2008). What influences individuals when receiving a message from mass media has been examined extensively across multiple disciplines. Mediating factors that influence individuals' behavior include trust in the source (Paul et al., 2015), risk perception (Arlikatti et al, 2007), and the specific media personality who disseminates the message (Sherman-Morris et al., 2020). Research examining specific media personalities' influence on behavior is limited within disasters and public health emergencies. Studies have found that individuals develop a one-sided relationship with media personalities who they view regularly (Horton & Wohl, 1956; Rubin & Step, 2000; Sherman-Morris et al., 2020). As

previously mentioned, this phenomenon is called *parasocial interaction* (PSI) or *parasocial relationship* (PSR) and has been found to influence audience behavior (Sood, 2002; Yuksel & Labrecque, 2016). Parasocial relationship could be a mediating factor on individuals' behavior dependent on how strong the perceived one-sided relationship is. The theory of PSR could potentially have played a role in individuals' behavior during COVID-19.

Protective Actions

Media effects on behavior can play a role in the protective actions that individuals take after receiving a warning message or a message on risk. Behavior that takes place after receiving a warning can include information seeking (Wood et al., 2018), risk confirmation (Kuligowski et al., 2014), and compliance or noncompliance with protective action recommendations (Mileti & Peek, 2000). Compliance with protective actions has been studied by many researchers who have examined why individuals behave the way they do after receiving a warning message (Arlikatti et al., 2019; Balluz et al., 2000; Lindell & Perry, 2000; Wang et al., 2018). While some argue that risk perception (Arlikatti et al, 2007) plays a role in compliance or noncompliance with recommended protective actions, others argue that the source of the message influences individuals to comply or not (Paul et al., 2015). It is argued that stakeholders, or information sources, can influence the perceptions and behaviors of individuals in high-risk events (Arlikatti et al., 2019; Jauernic & Van Den Broeke, 2016). When an important decision needs to be made surrounding an event, individuals who want more information are often forced to rely on mass media (Luhmann, 2000). Even though many access information through mass media, studies have found that individuals are more likely to trust information disseminated from authorities or experts specifically (Hackett, 2008; Kristiansen et al., 2007). Officials, authorities, and media

personalities need to disseminate accurate and truthful information to address misconceptions about a risk in order to increase protective action compliance (Lindell et al., 2017). This can be done through mass media platforms thanks to social media and national news channels that host experts and elected officials on daily segments. Other factors may play a role in preventive behavior. An individual's dependency on the media or perceived relationship with a media personality could potentially predict compliance with protective actions. Other studies have found that celebrity endorsements in public health campaigns influence preventive behavior (Brown & Basil, 2010; Myrick, 2017; Myrick & Willoughby, 2021). The COVID-19 pandemic and heightened reliance on the media during the pandemic provide a unique opportunity to examine this theory.

COVID-19 Compliance With Protective Actions

While COVID-19 is a novel virus, authorities and experts were still able to provide recommended protective actions to the public to decrease chances of infection. Protective actions such as social distancing, wearing face masks, washing hands regularly, quarantining at home, and avoiding large crowds were all behaviors recommended by authorities, experts, and the media (Centers for Disease Control, 2021; Jernigan, 2020; World Health Organization, 2020). However, there has been inconsistency in compliance with COVID-19 precautionary measures due to misinformation (Romer & Jamieson, 2020), lack of trust (Jiang et al., 2021), hypocritical behavior from decision-makers (Deliso, 2020; Patkin, 2020), differing recommendations among experts (Nagler et al., 2020; Ufuophu & Bebenimibio, 2021) and varied views or beliefs.

As the COVID-19 pandemic has progressed, there have been several studies on compliance with protective actions. Firouzbakht et al. (2021) conducted a study on protective actions in the United States during COVID-19 and found that around 50% of respondents did not

take protective actions seriously. Another study examining protective actions for COVID-19 among those with chronic conditions found that while prevalence of preventive measures was high across the sample, behaviors did vary between chronic disease conditions (Camacho-Rivera et al., 2020). Other studies examined if media effects played a role in influencing individuals' behavior during COVID-19. Al-Dmour et al. (2020) found that messages and campaigns on social media platforms did positively influence public health behavioral changes and awareness.

Studies have also examined why individuals did or did not comply with recommended preventive behavior during COVID. A study did find that government trust was a positive predictor of adopting protective actions during COVID-19 (Min et al., 2020). Another study found that individuals' media preferences influenced protective actions (Zhao et al., 2020). Misinformation has also been found to play a role in compliance with recommended protective actions (Romer & Jamieson, 2020). However, there are conflicting studies. Hornik et al. (2021) found that misinformation did not have a role in influencing preventive behavior, while belief about consequences did. Examining the factors that played a role in influencing compliance with protective actions during the COVID-19 pandemic could be useful for future similar events.

Sources of Information

Research has found that mass media coverage is often the main source of information for individuals during disease outbreaks (Allan, 2002). The COVID-19 pandemic has had substantial media coverage on preventive behaviors and other related information. A recent study found that increased media exposure during COVID-19 was positively related to compliance with preventive behavior (Melki et al., 2020). This study examined exposure to both traditional media and social media. Those exposed to high levels of television and low levels of social media, and those exposed to high levels of both types of media all demonstrated higher scores for preventive

behaviors (Melki & Kozman, 2021). Other studies have examined media attention and its role in preventive behaviors during COVID-19. Jiang et al. (2021) found that media attention was directly related to individuals' compliance with social distancing. Other studies have focused on the media's role in compliance with health-related behaviors before COVID-19. Vaccination behavior has long been studied among researchers. A study examining the influence of a statewide media campaign in Indiana on the flu vaccine found that exposure to the campaign was positively tied to vaccination behavior (Jones et al., 2015). Social media has also played a role in vaccination intention. A study on social media bots found that antivaccination tweets were disseminated to amplify political discord amongst social media users (Broniatowski et al., 2018). There is a significant amount of false information about vaccines on social media due to the antivaccination movement (Klimiuk et al., 2021), which could influence individuals' intention to get the new COVID-19 vaccine. Investigating individuals' media dependency and perceived relationships with media personalities, along with their preventive behaviors and intention to get the COVID-19 vaccine, could provide useful information for public health officials and risk communicators.

Experts and Elected Officials

Experts and elected officials can play a role in compliance with preventive behaviors in public health emergencies. During the H7N9 avian flu outbreak, elected officials were found to have positive effects on individuals' intentions to comply with protective actions (Wang et al., 2018). However, other studies have found that elected officials have mixed perceptions of their expertise and trustworthiness (Wei et al., 2018), which could influence adoption of preventive behaviors. A study examining if the public actually listens to public health experts during COVID-19 found that experts are perceived to have expertise compared to the layperson (Geiger,

2020). However, the same study found that while experts are perceived to have higher expertise, trust was equally rated between experts and peers, which suggests that experts are equally persuasive as peers (Geiger, 2020). Many elected officials are on social media and have disseminated information on social media about COVID-19. U.S. former President Donald Trump, current U.S. President Joe Biden, former German Chancellor Angela Merkel, and U.K. Prime Minister Boris Johnson, and many U.S. senators and representatives all disseminated information during the COVID-19 pandemic. When the COVID-19 vaccine first became available, elected officials shared photos of themselves on social media getting the COVID-19 vaccine to encourage the public to do the same. Representative Alexandria Ocasio-Cortez, current Vice President Kamala Harris, Majority Leader Mitch McConnell, and Florida Senator Marco Rubio all posted photos of themselves getting the COVID-19 vaccine and encouraged their constituents to do the same (Klein, 2020). Depending on parasocial relationships, individuals may have been influenced to get the COVID-19 vaccine if their preferred or favorite elected official received it as well. Examining if elected officials' disseminated information influenced the public on their behaviors and perceptions of COVID-19 can provide insights into behavior during public health emergencies, which can be useful for future events.

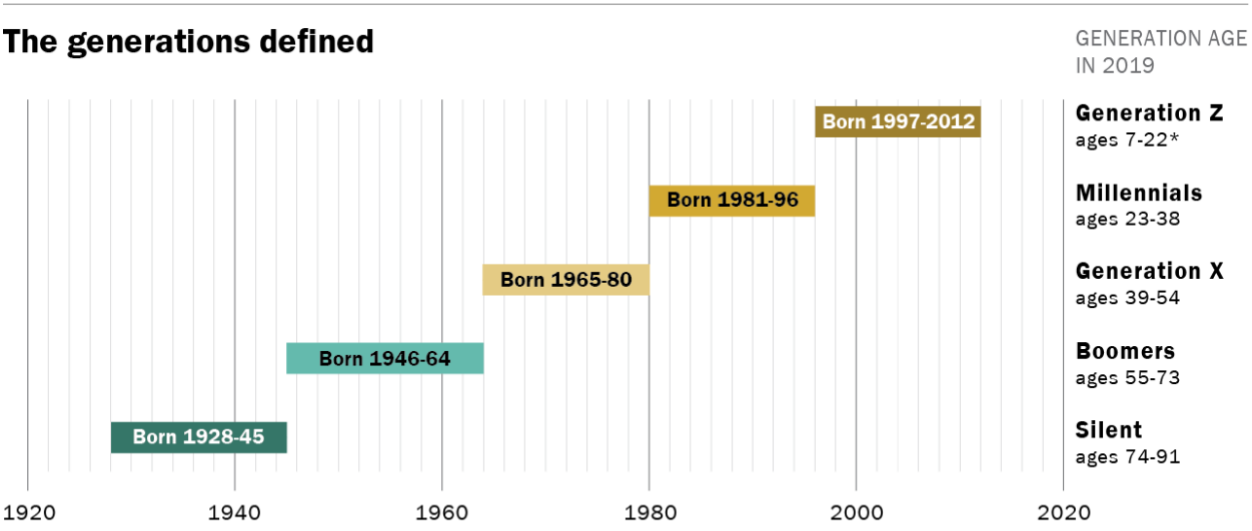
Generational Cohorts

Generations in the United States are defined as social groups and often share similar traits, values, and preferences due to the common experiences of growing up during similar times of cultural, economic, and political development or change (Mannheim, 1952; Strauss & Howe, 1991; Thau & Heflin, 1997). Generational naming is widely considered to have begun when American writer Gertrude Stein referred to those who served in World War I as the "Lost Generation," which was later made famous by Ernest Hemingway in his novel *The Sun Also*

Rises (Rosenberg, 2020). The main generations in the United States are Baby Boomers, Generation X, Millennials, and Generation Z (Rosenberg, 2020). The birth year range for each generational cohort can be found in Table 2.2. These generations are known by identifiable traits and preferences on many things, including technology and media. Baby boomers, were born before the age of the Internet and social media (Belhadjali et al., 2016) and are the oldest generation included in this study. Generation X (Gen X) is the next oldest generation and grew up in the early stages of the Internet (Belhadjali et al., 2016).

Table 2.2

Generational Cohorts Defined



Note: From "Defining Generations: Where Millennials End and Generation Z Begins" by Pew Research Center, 2019 (https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/ft_19-01-17_generations_2019/).

Millennials grew up when social media first began to become popular, and Generation Z (Gen Z) has only known a socially networked world (Belhadjali et al., 2016). The time period when each generation was born seems to play a role in their media preferences and media consumption behavior. Examining the different generational cohorts in the current study will provide insight regarding media preferences and media consumption behavior. This could be useful when developing future messages or campaigns targeted at specific age groups. It could also be useful for future studies interested in examining why generational cohorts differ behaviorally.

Generational Cohorts and the Media

Individuals turn to media for a variety of reasons: politics, sports, entertainment, current events, and other topics. Media consumption behavior differs between generations and how they seek information. A study found that those over the age of 35 are more likely to go directly to a news site or app, while Generation Z are more likely to browse social media platforms for news (Newman et al., 2019). Millennials fall in the middle as 43% browse social media for the news, and 33% go to a direct news app or site (Newman et al., 2019). This suggests that brand loyalty to news sites, even local ones, is lower among Generation Z and Millennials compared to older generations. A study by the Pew Research Center found that only 27% of respondents recognized a photo of a well-known national news anchor (Suls, 2014). This is a significant drop in numbers compared to a study in 1985 when 47% of Americans could correctly identify a popular national news anchor (Suls, 2014). This suggests that there are less individuals who routinely watch network news on television. Younger generations may also be less familiar with elected officials. A separate study by the Pew Research Center found that a higher percentage of Americans over the age of 50 could positively identify Marco Rubio, a senator from Florida (Pew Research

Center, 2013). The decrease in regular viewership and familiarity with elected officials could affect the perceived *parasocial relationship* (PSR) between news media personalities or officials and younger generations.

Parasocial relationship (PSR) has been found to be associated with age in past studies. Rihl and Wegener (2019) found that PSR declined with age in a study examining the relationship between YouTube celebrities and followers. However, Levy (1979) found that older individuals are more likely to develop PSR. There is conflicting data on this topic as other studies found no relationship between PSR and age (Perse & Rubin, 1989; Rubin et al. 1985). Schmid and Klimmt (2011) proposed that PSR is stronger when there are similarities that exist between media personalities and viewers. Some researchers argue that individuals search for media personalities who they can identify with and adopt the beliefs, values, behaviors, and attitudes of those personalities (Brown, 2015; Burke, 1969). The fact that YouTube celebrities are often younger could explain why Rihl and Wegener (2019) found that PSR declined with age. As age increases, opportunities for identification and similarities decrease, which could explain why PSR decreases in older audiences (Rihl & Wegener, 2019). In 2013, the average age of journalists was 47 years (Statista Research Department, 2014). This demonstrates that age could potentially play a role in PSR rates between generational cohorts.

Conceptual Framework

The context of this study is the effects of mass media on individuals' thoughts, attitudes, and behaviors during COVID-19. Most of the existing research on *media dependency* and *parasocial relationship* are outside the disaster context, and there are no studies that examine either theory in a pandemic event so far. These perspectives have been useful for establishing a foundation for both theories but fail to capture the complexity of media influences during

disasters, public health emergencies, and other high-risk events. The media provides information and updates to the public during times of disaster and ambiguity. With the increased polarization and division of the U.S. media and its tendency to politicize any event, its effects on public opinion and behavior have become more noticeable in recent years (Brunell & Maxwell, 2020; Eberl & Plescia, 2018; Melki & Sekeris, 2019). The COVID-19 pandemic was no different, and media bias and sensationalism can be found from multiple mass media sources representing both majority political parties in the United States (AlAfnan, 2020; Zhao et al., 2020). This more than likely influenced individuals' thoughts, attitudes, and behaviors during the pandemic. Examining if and how mass media influenced individuals during times of crisis can provide useful information for researchers and professionals in relevant fields. While the COVID-19 pandemic is starting to recede, with new variants, there is the potential for another wave of the pandemic to occur. Collecting and analyzing data related to individuals' behaviors could prove useful if an additional wave were to happen.

The two theories emphasized in the current study, as previously discussed, are *media dependency theory* (MDT) and *parasocial relationship* (PSR). These two theories have been utilized in conjunction in past studies (Auter & Palmgreen, 2000; Grant et al., 1991; Sherman-Morris, 2006). Auter and Palmgreen (2000) theorized that parasocial relationship would be positively correlated with average television viewing level. The researchers proposed that the more positive PSR relationships with media personalities a person maintains, the more TV that person would view (Auter & Palmgreen, 2000). They referenced media dependency in their research and argued that while the two concepts are not the same, they are related constructs and appear to be directly related to the strength of an interaction relationship (Auter & Palmgreen, 2000). They found a mild positive correlation between media dependency and PSR. Rubin et al.

(1985) argued that the role of media dependency in the development of *parasocial interaction* (PSI) is evident, particularly when individuals are lonely. While Rubin et al. (1985) studied PSI, PSR derives from PSI, and both are closely related. This argument makes the case for examining the two theories together during the COVID-19 pandemic since the global population was isolated and maintained social distancing practices. Many lived alone and had to rely on mass media and technology to give themselves a feeling of connection (Jarzyna, 2021. Rubin et al. (1985) found in a study that PSI and media dependency were significantly and positively related. These studies provide a basis for the current study to explore the relationship between media dependency and PSR.

Hypothesized Relationships

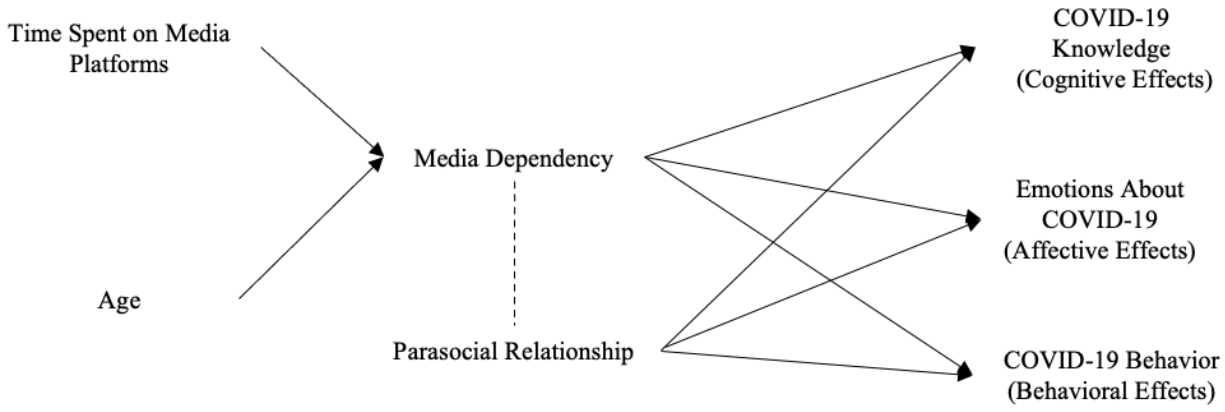
The dependent variables are COVID-19 knowledge, attitudes about COVID-19, and COVID-19 preventive measure behavior with *parasocial relationship* and *media dependency* as independent variables. *Parasocial relationship* is also examined as a dependent variable with *media dependency* goals as a predictor. *Media dependency theory* (MDT) has been found to have a causal effect on PSR rates. Grant et al. (1991) developed a causal model that explains how MDT can influence PSR with media personalities. The authors theorized that since some level of participation and involvement is necessary for an individual to develop PSR with a media personality, dependency on a media medium will cause PSR when an individual becomes accustomed to viewing a specific individual on the media source upon which they are dependent (Grant et al., 1991). Skumanich and Kintsfather (1998) developed a similar model predicting that media viewing and media dependency would increase the intensity of *parasocial interaction*.

Parasocial relationship has also been found to influence attitudes and behavior outside the viewing time (Sood, 2002; Yuksel & Labrecque, 2016), which suggests that PSR could influence individuals' attitudes and behavior. It is not known if PSR could influence knowledge or cognitive effects, but if an individual has a perceived relationship with a media personality, they could potentially obtain information and knowledge from that media personality.

The causal model to support MDT and PSR as a mediating variable can be found in Figure 1.2. This model is adapted from the aforementioned study by Grant et al. (1991). The model predicts that the time spent on media mediums will influence media dependency. It also predicts that age will influence media dependency as studies have found that age is a predictor of dependency (Jackob, 2010; Loges, 1994; Yang et al., 2015). However, the findings of these studies conflict with one another. Loges (1994) and Yang et al. (2015) both found that younger individuals are more dependent on media, while Jackob (2010) found that older individuals are more dependent on media. All studies used different media mediums in their research, which suggests that which media medium is examined determines which age group has higher dependency rates. The model suggests that media dependency could indirectly influence cognitive, affective, and behavioral effects through PSR or could directly affect the three dependent variables.

Figure 1.2

Hypothesized Structural Model



Note: Adapted from "Television Shopping: A media system dependency perspective," by Grant et al., 1991, *Communication Research, 18*(6), p. 785.

Methodological Prelude

The work from Grant et al. (1991) guided the methodology for the current study. A quantitative approach was selected due to the assumptions of causal relationships. The research questions, which are listed further along in this chapter, focus on the potential media effects within generational cohorts due to *media dependency* and *parasocial relationship* (PSR). Media dependency has also been found to influence individuals' behavior, but a majority of research focuses on voting behavior or shopping or purchasing behavior (Alcañiz et al., 2006; Skumanich & Kintsfather, 1998; Yang et al., 2015). Unfortunately, it is unknown if and how mass media and media personalities influence individuals' behavior during disasters and/or pandemics. While the two theories have been studied in conjunction in past studies, there is only one that ties the two

theories together in a disaster context that focuses on protective action decision-making during a hurricane (Sherman-Morris et al., 2020). This research gap presents an opportunity to explore an unknown area as COVID-19 is the first global pandemic in a century. During COVID-19, mass media demonstrated its prominent role in disseminating information to the public regarding the risks, protective actions, and updates. The COVID-19 pandemic also demonstrated that during a disaster, individuals will adopt a wide variety of thoughts, attitudes, and behaviors regarding protective actions. This study examined the research gap and explored if and how the media influenced individuals' perceptions and decisions throughout the pandemic.

Research Questions

The above review of the mass media and risk communication literature clearly demonstrates the potential value of examining the role of the mass media and media personalities in influencing protective action decision-making in disaster situations. The following research questions are proposed:

RQ1: What is the relationship between media dependency and individuals' thoughts, attitudes, and behaviors regarding COVID-19?

RQ2: What is the relationship between parasocial relationship and individuals' thoughts, attitudes, and behaviors regarding COVID-19?

RQ3: What are the different media usage patterns between the generational cohorts?

Methodological Challenges

There were methodological challenges related to sampling, survey administration, and timing of the proposed study that must be addressed. A potential challenge to the study's validity was the gap in time between the assessment (the height of COVID-19) and the time the survey

was disseminated. A study examining media dependency after the 9/11 terrorist attacks conducted a survey six months after the event (Lowrey, 2004). The author argued that it is reasonable to expect that respondents will be able to recall their behaviors and cognitions given the significance of the 9/11 terrorist attacks. Since the COVID-19 pandemic has been a significant and chronic event, it is reasonable to assume that respondents were able to recall their cognitions, attitudes or emotions, and behaviors. This also addresses the challenge of self-reporting. Self-report studies have challenges such as participants not remembering the information needed to answer the question and participants possibly not telling the truth (Mitchell & Jolley, 2009). Since the COVID-19 pandemic was still arguably in existence at the time of the study and the impact of the pandemic was significant, the principal investigator (PI) believes that participants were able to recall the information to correctly answer the questions on the questionnaire. However, the PI cannot ensure that participants told the truth when answering the questionnaire. To protect against response bias, there were multiple questions for each variable. Using multiple questions to measure the same variable can help identify any inconsistencies in survey studies. Regarding questions that could have made individuals answer with a socially desirable answer, there were contradictory questions to recognize if the responses were inaccurate. This mitigation strategy was used specifically for the questions that focus on COVID-19 behaviors and decisions due to the conflicting opinions regarding protective actions and social distancing measures recommended by the CDC (2021) and other media outlets.

The current study used a convenience sample, which created challenges and limitations. When convenience sampling is utilized in inferential statistics, there is an assumption made that the sample is comparable to a random sample from the same population (Frey, 2018). However, there will always be a bias in the sample, which makes it difficult to make inferences. There are

strategies to mitigate the challenges experienced in a study with a convenience sample that intends to use tests of significance. A researcher can describe the demographics and other characteristics of the sample and compare it to the population of interest so that the representativeness can be truly evaluated (Frey, 2018). Several studies examining media dependency and PSR utilize convenience sampling and then compare the demographics of the sample to the population of interest (Dibble et al., 2016; Johnson & Kaye, 2004; Kim et al., 2015; Sherman-Morris et al., 2020). Demographic data such as birth year range representative of generational cohorts and gender were collected in the questionnaire. This data was compared to the state of Arkansas demographic data to examine the representativeness of the sample.

Summary

As this chapter established, mass media plays a significant role in society, particularly during times of ambiguity. While there are many theories tied to mass media, this study focuses on *media dependency theory* and *parasocial relationship* and the potential effects these theories might have on individuals' thoughts, attitudes, and behavior. *Media dependency theory* (MDT) assumes that during times of ambiguity, individuals will become more dependent on their preferred media medium (Ball-Rokeach & DeFleur, 1976), which could heighten the influence of media effects. Individuals also can develop a one-sided relationship with media personalities who they view regularly on a media platform (Horton & Wohl, 1956), which could also play a role in attitudes, beliefs, emotions, and behaviors (Hartmann & Goldhoorn, 2011; Sood, 2002; Yuksel & Labrecque, 2016). The current study hypothesized that MDT and parasocial relationship (PSR) played a role in influencing individuals' knowledge, attitudes, beliefs, and behaviors during the COVID-19 pandemic. Since it has been found that MDT influences cognitive, affective, and behavioral effects after a disaster (Lowrey, 2004), it would seem to play

a role during COVID-19. Parasocial relationship has been found to compensate for social and physical deficits (Derrick et al., 2008; Derrick et al., 2009; Jarzyna, 2012). During the COVID-19 pandemic, people were forced to isolate, quarantine, and social distance for months, which created a social and physical deficit for many individuals (Jarzyna, 2021). Social media use also skyrocketed after social restrictions were put in place, which could indicate that PSR rates could have also risen (Lim, 2020). Dependency on media during COVID-19 has also risen since reports show that social media usage has increased significantly since COVID-19 hit the United States (Statista Research Department, 2021a). The COVID-19 pandemic created the perfect storm to analyze MDT and PSR and their potential role in influencing behavior, emotions, and other aspects. While the reviewed studies provide some evidence of predictors of preventive behavior, none examine whether MDT *and* PSI could potentially influence attitudes, beliefs, emotions, and compliance with recommended protective actions during COVID-19.

Chapter 3: Methodology

This study's goal was to examine *media dependency* and *parasocial relationship* and their effects on thoughts, attitudes, and behaviors related to COVID-19. By better understanding how mass media influences the public, particularly during disasters and public health emergencies, those responsible for communicating with the public during crises may be able to better tailor and develop messages that positively influence individuals and different age groups to take appropriate protective action.

This chapter describes the research approach for the current study and plans for data collection and analysis. The study is quantitative by design, using a survey with Likert scale questions as the instrument. The chapter is organized as follows: First, the rationale for the research approach is discussed in depth with justification for selection. Then, the research setting is described to explain the reasoning for selecting the population of interest. Next, the research sample and data sources are described, followed by data analysis methods. The limitations and delimitations are described after the sample and data sources. Details outlining the instrument and why it was selected for the study will be discussed along with their reliability and validity. The section on the instrument will also discuss the procedures that will be followed in data collection. The plan for data analysis also includes a discussion of the measures used in the study. Lastly, a summary overview of the chapter highlights important points from the chapter.

Rationale for Research Approach

The current study's goal was to examine age, time spent on media mediums, media dependency goals, and parasocial relationship as independent variables. Two theories provide the conceptual framework for the current study: *media dependency theory* (MDT) and *parasocial relationship* (PSR). The relationship between age and time spent on media platforms was

examined. The relationship between parasocial relationship and thoughts, attitudes, and behaviors was examined. The relationship between the media dependency goal of understanding and cognitive media effects was examined along with the relationship between the media dependency goal of behavior orientation and behavioral media effects. Lastly, the relationship between media dependency goals and parasocial relationship was be tested to see if there is any correlation between the two variables.

A quantitative approach was selected to explore the research questions developed for the current study. Research questions determine the research methods used in a study (Mitchell & Jolley, 2009). Since the research questions developed for the current study were related to describing a group, a survey method was considered to be an acceptable approach. An online questionnaire was administered through the survey platform Qualtrics. The questionnaire was anonymous and did not collect any identifying data from participants. The use of a questionnaire was appropriate for the current study because understanding individual thoughts, attitudes, and behaviors required asking the population directly. This approach is not foreign to past studies on media dependency theory and parasocial relationship. It should be noted that this research study utilized a convenience sample, so statistical inference could not be made regarding the data as it would with probability samples (Mitchell & Jolley, 2009). However, there are reasonable arguments that convenience samples provide useful data, which will be discussed in the following paragraphs.

Using a convenience sample created several challenges in making inferences. Utilizing a convenience sample means that there could be sampling bias, which may not accurately reflect the population (Sirkin, 2005). Convenience sampling is, however, quick and cost-effective (Mitchell & Jolley, 2009). There are many disciplines that rely mostly on nonprobability samples

for research, including psychology, medicine and health, and economics, which are published in peer-reviewed journals and accepted as valid studies (Baker et al., 2013; Couper, 2007; Hirschauer et al., 2019). Sometimes nonprobability sampling is necessary for certain disciplines. One would not randomly select individuals to participate in a medical trial examining treatment for a specific illness. Medical studies must use nonprobability samples to ensure they test new drugs and medicines out on those who need the treatment. Thus, there are compelling situations in which nonprobability sampling is necessary or acceptable.

Another example of when convenience sampling is necessary or more acceptable is during unusual events where there are no other means of accessing participants (Galea et al., 2008). During or after disasters, perishable data is valuable to collect. A study examining 225 past disaster studies found that the majority of sampling methods were convenience samples due to the ease of collecting data after a disruptive event (Norris, 2006). COVID-19 is considered a chronic disaster and creates considerable challenges for collecting data. At the time of this research, the Delta variant had just begun to make traction in the United States, which caused many businesses and organizations to reimplement COVID-19 mitigation measures. This created challenges to collecting data in the field, which again supported the decision to use an online questionnaire with a convenience sample.

The need to collect data as quickly as possible also made an argument for convenience sampling. Time is an important variable in disaster research (Norris, 2006). With a current 63.8% of the U.S. population who have received at least one dose of the vaccine, COVID-19 case numbers are still high (CDC, 2021). The perishable data needed to be collected in order to measure individuals' thoughts, attitudes, and behaviors more accurately before thoughts and behaviors during the pandemic were forgotten. Real-time collection of data during and after

disasters can provide more accurate data and therefore better recommendations for improvements for future incidents (Institute of Medicine, 2015). Collecting perishable data during disasters and public health emergencies is challenging (Institute of Medicine, 2015). As time progresses after a disaster ends, individuals' thoughts, attitudes, and behaviors can change. This also establishes a need to collect the perishable data as soon as possible. Due to the nature of this study, convenience sampling was considered appropriate.

Research Setting

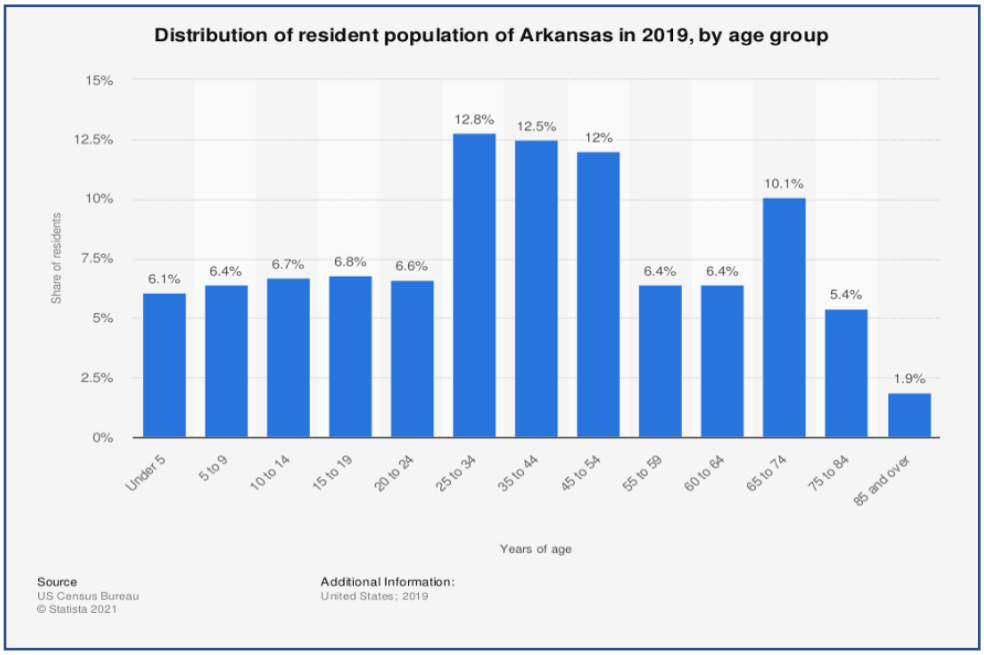
The populations of interest for this study were generational cohorts in the state of Arkansas. The generational cohorts of interest were Baby Boomers, Generation X (Gen X), Millennials, and Generation Z (Gen Z). Surveying residents in the state of Arkansas provided insight regarding an entire state, which could potentially provide insight to other similar states. All states have experienced the COVID-19 pandemic, and all residents in the United States have experienced the effects of the pandemic as well. While examining an entire state provided useful findings, generalizability, as previously discussed, was limited since a convenience sample was used.

The population of Arkansas is a little over 3 million (United States Census Bureau, n.d.). The age distribution in 2019 in Arkansas (found in Table 3.1) shows that the largest age groups are 25–34, 35–44, 45–54, and 65–74 (Statista Research Department, 2021b). While some of the age groups in Table 3.1 overlap with the generational cohorts, it does suggest that the largest generational cohort is Millennials, followed by Generation X and then Baby Boomers. The data also suggests that Generation Z is the smallest generational cohort in Arkansas. While most of the population is White in Arkansas (79%), there are a wide range of races and ethnicities, including Black/African American (15.7%), Hispanic/Latino (7.8%), Asian (1.7%),

Hawaiian/Pacific Islander (0.4%), and American Indian/Alaska Native (1.0%) (United States Census Bureau, n.d.). Around 86% of Arkansas residents have a high school diploma, and 23% have a bachelor's degree or higher (United States Census Bureau, n.d.). Knowing the demographics of the population of interest helped compare the sample to the population, which will help determine if the sample was representative.

Table 3.1

Distribution of Resident Population of Arkansas in 2019, by Age Group



Note. From "Distribution of Resident Population Share of Arkansas in 2019, by Age Group," by Statista Research Department, 2021b (https://www.statista.com/statistics/1021884/arkansas-population-share-age-group/). In the public domain.

Overview of Arkansas

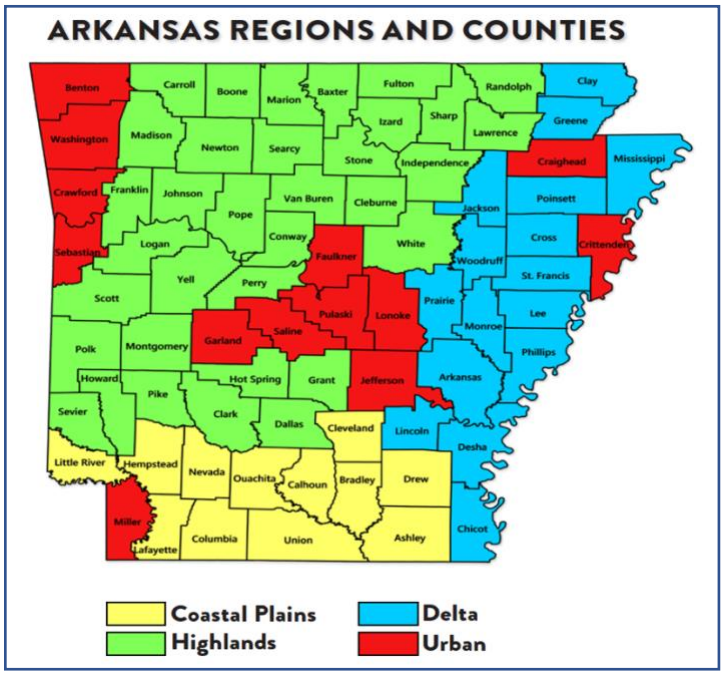
The state of Arkansas was selected as the research setting for this study for several reasons. Arkansas is located in the South-Central region of the United States and is home to a little over 3 million people, as previously mentioned (Drummond & Graff, 2021). Arkansas, known as the Natural State, has a socioeconomically diverse population, distinct geography, a wide range of industries, is home to multiple higher education institutions, and has a military base. While a majority of the population is White, Arkansas has experienced an influx of immigrants from Mexico and various countries of Asia (Drummond & Graff, 2021). The diversity in race has also increased because Walmart's home office is located in Arkansas and has brought individuals from all over the world to Arkansas (Paschal, 2018). The widely diverse races and cultures provide a unique population to examine.

Arkansas also has a distinct geography across various regions of the state. Arkansas is primarily rural but has urban areas. Figure 3.1 shows the Arkansas regions and counties classification in regard to rural and urban areas. The Ozark and Ouachita mountains in the northern and western parts of the state contrast with the flat, river-laced Delta agricultural lands in the east. The eastern part of Arkansas is primarily rural with agriculture as the main industry. Arkansas is the first in the nation in rice production, third in the nation for cotton production, and 10th in the nation for soybean production (Arkansas Farm Bureau, n.d.). The southern region is home to forests that contribute to Arkansas' lumber industry. Arkansas is the fifth-largest softwood lumber-producing state in the United States (Arkansas Farm Bureau, n.d.). Arkansas also produces a significant portion of beef, dairy products, catfish, poultry, pork, and wheat (Arkansas Farm Bureau, 2021). This diverse industry provides a unique opportunity to examine a

wide variety of individuals from these various industries. Each industry has its own culture and values, which increases the diversity of the population of interest.

Figure 3.1

Arkansas Rural and Urban Classification



Note: From *Rural Profile of Arkansas 2019: Social and Economic Trends Affecting Rural Arkansas*, by Miller and Knapp, 2019. In the public domain.

While agriculture is Arkansas' largest industry, it is not the only significant industry. Arkansas is home to 145 Fortune 500 firms with 3,200 operations in the state (Arkansas Economic Development Commission, 2020). Due to its central location in the United States, Arkansas has a large transportation and logistics industry. It is home to 22 major trucking companies, including J.B. Hunt Transportation, USA Truck, and a FedEx site (Arkansas Economic Development Commission, 2019). Arkansas is also home to Dillard's Inc., which is a large retailer (Arkansas Economic Development Commission, 2018). Arkansas also has a

significant aerospace and defense industry. Arkansas is home to 180 aviation, aerospace, and defense companies (Arkansas Economic Development Commission, n.d.). The Little Rock Air Force Base drives much of this industry and increases the military presence in the state. Arkansas is also home to several higher education institutions, including 10 four-year universities, 22 two-year colleges, 12 private universities, one academic health center, and seven technical schools (Arkansas Division of Higher Education, n.d.). Health care is also a large driver in the Arkansas economy. Arkansas is home to multiple healthcare systems, including two Department of Veteran's Affairs medical centers, the Arkansas Children's Hospital system, Baptist Health system, Washington Regional medical system, White River Health System, and the University of Arkansas for Medical Sciences (UAMS) (Living in Arkansas Staff, 2010). Lastly, Arkansas surprisingly has large technology and manufacturing industries. The state has a large variety of manufacturing plants that account for 14.93% of the total output of the state's exports (National Association of Manufacturers, 2021). With a fast-growing technology industry, Arkansas became the first state to mandate coding education in schools (Arkansas Economic Development Commission, 2020). Technology companies such as Acxiom, DXC Technology, First Orion, and Genpact all call Arkansas home (Arkansas Economic Development Commission, 2020). This incredibly diverse range of industries in the state attracts diverse individuals, which provides a unique population to examine regarding thoughts, attitudes, and behaviors.

Research Sample and Data Sources

For this study, participants must have been 18 years or older and a resident of Arkansas. Generational cohorts are defined loosely by birth year and not current age (Parry & Urwin, 2011). While the Generation Z cohort extends from 1997–2015, this study is limiting participation to those who are 18 and older for human subject reasons. The sampling technique

selected was convenience sampling, which was selected due to the ease of collecting responses and the cost-effective approach to data collection. There are challenges to using a convenience sample in a research study. First, when a convenience sample is utilized, bias is assumed since the sample was not randomly selected (Mitchell & Jolley, 2009). This makes results for a study using convenience sampling difficult to generalize to the population of interest since bias cannot be determined. However, researchers have argued that past studies have proven that results from nonprobability samples do not differ that much from the results of probability samples (Baker et al., 2013). According to the American Association for Public Opinion Research (AAPOR) Taskforce on Non-Probability Sampling, "there have been a number of reported instances where nonprobability samples have yielded results that are as good or even better than probability-based surveys when measured against external criterion" (Baker et al., 2013, p. 13). Alternate methods to mitigate biases in nonprobability sampling were listed in the AAPOR report, such as sample matching, propensity score adjustment, and met assumptions of respondent-driven sampling (Baker et al., 2013). Another challenge is that there may have been bias due to the format of the questionnaire. It was an online questionnaire, and therefore Internet access was required to take the survey. However, 93.5% of Arkansans have access to Internet (BroadbandNow, 2021), so that specific bias was somewhat limited.

The benefits to the use of convenience sampling include the low cost and time-saving technique. It was not practical to obtain a truly random sample for the current study given the population size and limited scope of this research. To conduct a true random sample for the state of Arkansas would cost significant time and resources. Limitations and ways to mitigate the challenges will be discussed further later in this chapter.

The principal investigator (PI) aimed to collect at least 400 responses in order to increase the power of the study. Two major factors that influence the power of a study are sample size and effect size (Mitchell & Jolley, 2009). The larger the sample size is, the more data is collected, and therefore uncertainty can be reduced.

The recruitment strategy for participants included social media, email, and established newsletters and websites serving Arkansas residents. The PI posted a link to the survey on social media and allowed it to be sharable and open to the public so that connections could share the link to their social media pages as well. Emails with the link were sent to state government agencies, corporate businesses, associations, county government agencies, nonprofit organizations, health care institutions, and higher education institutions. The link to the questionnaire was placed in several newsletters and websites for different institutions, agencies, and associations. The approach to collect data through these sources will be discussed in further detail in the Data Collection Methods section.

Data Collection Methods

The online questionnaire was provided through various online methods. Online sources have been shown to increase diversity in demographics such as age, gender, race, and socioeconomic status (Gosling et al., 2004). As previously mentioned, the questionnaire was sent to multiple higher education institutions, state agencies, private businesses, county government, state and county associations, and the PI's social media pages. The institutions and organizations that were contacted were selected based on the PI's ability to negotiate access to them. The PI is an Arkansas native and has built relationships across the state with multiple agencies, organizations, and individuals across multiple sectors. Permission to disseminate the questionnaire link through official organizations, agencies, associations, and higher education

institutions was sent to the PI's direct contacts. An email requesting assistance in officially disseminating the questionnaire to organizations, agencies, associations, and higher education institutions can be found in Appendix A. The consent statement was placed on the landing page of the survey, which can be found in Appendix B. Participants had to agree to the consent statement before moving forward with the survey.

The PI is a faculty member at Arkansas State University (A-State) in Jonesboro and asked contacts within the university to share the questionnaire as well. The questionnaire link was sent to deans, department chairs, and faculty members to distribute to students as well as faculty and staff. The email requesting assistance in disseminating the questionnaire to A-State students, faculty, and staff can be found in Appendix A. The questionnaire was posted on the researcher's personal social media accounts. The posts were shareable so that online connections could share to their personal accounts in hopes of reaching more respondents.

Participants were given an online questionnaire, as shown in Appendix C. Participants were provided an informed consent statement on the questionnaire landing page that they must have agreed to before completing the questionnaire. Participants were informed that their participation was completely voluntary and informed that they could withdraw from the questionnaire at any time. Participants were asked to confirm that they were 18 years or older and that they were an Arkansas resident. If the answer was no, the survey ended. If the participants agreed to the consent statement that verified their age and residency, the survey continued. The questionnaire was open for around four weeks. In order to provide an incentive for respondents to take the survey, participants had the option of entering their email address to win one of four $25 Amazon gift cards. The purpose of this was to incentivize individuals to take the questionnaire.

Measures

Survey items were used to create measures for media dependency, media effects, and parasocial relationship. The instruments utilized for the current study are from previous studies where the measures have been validated and are considered reliable (Auter & Palmgreen, 2000; Loges & Ball-Rokeach, 1993; Patelarou et al., 2020; Sherman-Morris, 2006; Sherman-Morris et al., 2020). The next few sections will discuss the measures for each part of the survey.

Media Dependency

The scale utilized to capture intensity of media dependency is based on frequency of use. Items measuring media dependency were measured using a 5-point Likert scale. Scale items ranged from "extremely often" to "never." While Loges and Ball-Rokeach (1993) only used a 3-point Likert scale for their measurement, the current study increased the measurement to a 5-point Likert scale to make the measure more sensitive. A sensitive measure is more likely to be a more valid measure (Mitchell & Jolley, 2009). Media dependency goals (understanding, orientation, and play) were measured by averaging the questions for each dimension. Media dependency goals differed from time spent on media platforms in the data analysis. Time spent on media platforms was utilized to examine the media platform preference differences between generational cohorts, while the media dependency goals item was used to measure against media effects and parasoscial relationship.

Media Effects

The scale utilized to capture media effects is based on a recent study examining COVID-19 knowledge, attitudes, and behaviors. Since COVID-19 is a novel virus, there were no known instruments to measure knowledge, attitudes, and behaviors about COVID-19 until Patelarou et al. (2020) created an instrument. To measure COVID-19 knowledge, attitudes, and behaviors,

Patelarou et al. (2020) created a 5-point, Likert scale survey with the scale ranging from 1–5 with 5 indicating greater agreement. For the current study, the measurement also used a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." While the study by Patelarou et al. (2020) did not specifically examine media effects, it did measure COVID-19 knowledge, attitudes, and behaviors, which can be influenced by media dependency. The researchers pilot tested the instrument and used it in a full study. It was found to be both reliable and valid (Patelarou et al., 2020). Each variable (knowledge, attitude, behavior) was measured by averaging the questions for each variable type. This measurement seems appropriate to examine potential media effects on COVID-19 knowledge, attitudes, and behaviors in correlation to media dependency.

Parasocial Relationship

It is important to note that parasocial relationship (PSR) is a concept based on parasocial interaction (PSI), which has been validated through multiple studies (Rubin et al., 1985). More recent studies have reconsidered the construct and refer to it as *parasocial relationship* due to the fact that most PSI scales measure more enduring qualities that reflect relationships rather than interactions (Sherman-Morris et al., 2020). Parasocial relationship (PSR) was measured through a 5-point Likert scale with items ranging from "strongly agree" to "strongly disagree." This measure has been found to be reliable and valid in previous studies (Sherman-Morris, 2006; Sherman-Morris et al., 2020). Parasocial relationship was measured by averaging the nine items asking about the respondents' preferred media personality. The four dimensions were separated for PSR as a high score for the measure is overall generally accepted (Sherman-Morris, 2006). Parasocial relationship is a state of mind rather than a behavior, which requires more than a single question to accurately measure it (Robinson, 1998). The greater scoring across all items

indicates the intensity of the relationship. The combination of responses to the items in the index yielded gradations of the variable, while a respondent rating all items high was characterized as a high score overall (Babbie, 1998). This should produce acceptable results to measure PSR among respondents.

Instrumentation

Most of the instrument items were adapted from previous research to increase the validity of the study. This study utilized four instruments that were modified to fit into the current study's context of COVID-19. There were also three demographic items included on the instrument to obtain information on which generational cohort the respondent belonged to along with gender and ethnicity. A pilot test was conducted to test the instrument. The PI invited 12 individuals consisting of peers and friends to pilot the instrument and provide feedback. Feedback from the participants was taken into consideration and applied to the instrument. The next few sections will discuss the adapted instruments, the validity and reliability of each, and the breakdown of the dimensions, if applicable, of each instrument. An overview of the constructs and their measures can be found in Table 3.2.

Table 3.2

Constructs and Measures

	Media Dependency	Parasocial Relationship	COVID-19 Media Effects
Instrument	Media Dependency (adapted from Loges & Ball-Rokeach, 1993)	Audience-Persona Interaction Scale (adapted from Auter & Palmgreen, 2000)	COVID Knowledge, Attitudes, Behaviors, and Volunteering Questionnaire (Patelarou et al., 2020)
Type of data gathered	Quantitative	Quantitative	Quantitative
Types of scores produced	15-item scale assessing 4 dimensions of media dependency: understanding (4 items), self-expression (3 items), orientation (4 items), and play (4 items)	10-item scale	17-item scale measuring cognitive effects (4 items), affective effects (6 items), and behavioral effects (7 items)

Media Dependency Instrument

The first instrument measured *media dependency* and is from Loges and Ball-Rokeach (1993), which has been utilized and adapted for other studies (Kim et al., 2015; Loges, 1994). Media dependency theory states that individuals' dependency on media is influenced by a range of goals (Ball-Rokeach & DeFleur, 1976). The goal dimensions were utilized to test the effect of the degree to which the respondents' media medium is central to their everyday life overall. The goal dimensions examined in this study were: orientation, understanding, play, and expression,

which measured cognitive, affective, and behavioral effects. A summary of the goals and their dimensions can be found in Table 3.3.

Table 3.3

Typology of Individuals' Media System Dependencies

	Understanding	Orientation	Play
Personal	*Self-understanding*: Basic understanding of themselves	*Interaction orientation*: To make a behavioral decision	*Solitary play*: For relaxing and releasing stress when individuals are alone.
Social	*Social understanding*: Understanding of social environment	*Action orientation*: To have guidance for interacting correctly with other people	*Social play*: For relaxing and releasing stress together with other people.

Note: Adapted from "The Origins of Individual Media-System Dependency: A Sociological Framework," by Ball-Rokeach, 1985, *Communication Research*, *12*(4), p. 496.

Orientation Goals

Orientation goals were selected to be used in the current study because they are concerned with behavioral decisions (Grant et al., 1991). This study sought to examine if MDT played a role in individuals' behaviors and decisions during COVID-19. Therefore, the dimension of action orientation within MDT was relevant for this study. Action orientation provides guidance on appropriate behavior that is consistent with expectations and norms of society within a particular context or situation (Loges, 1994). This is a vital dimension to

measure since COVID-19 drastically altered society's norms and expectations. Interaction orientation helps develop suitable and acceptable social, conversational, and social skills (Loges, 1994). Knowing how to discuss COVID-19 with others was vital as perspectives widely varied on the virus. This is why this dimension was appropriate to study within the current study. Action orientation accounted for two items in the MDT portion of the questionnaire, while interaction-orientation accounted for two items in the questionnaire.

Goal of Understanding

The other dimension utilized in this study was understanding goals, including personal understanding and social understanding. Personal understanding refers to the need of individuals to gain a basic understanding of themselves (Carillo et al., 2017). This suggests that individuals could have used media to gain a better understanding of themselves during COVID-19. Social understanding dependency occurs when an individual relies on media sources to achieve the goal of understanding their social environment (Grant et al., 1991). The social realities held by individuals are the product of what society enculturates, which also influences their social action (Ball-Rokeach & DeFleur, 1976). This suggests that an individual who utilizes media to achieve understanding of their social environment will adapt to fit into the cultural standards that will influence their social actions. The goal of understanding is compared against cognitive media effects, as previously discussed in Chapter 2. This dimension was examined in the current study since many individuals used media to gain an understanding of the social and physical environment during COVID-19. Social understanding and personal understanding accounted for two items each in the MDT portion of the questionnaire.

Goal of Play

The goal of play was included to gauge if the other dimensions were more important goals to individuals during the pandemic compared to the goal of play. While this specific media dependency goal was not examined in data analysis in the current study, the PI felt it was important to collect to be analyzed in the future. Studies have found that during disasters or crises, the goal of play is less important compared to the goals of understanding and orientation (Lowrey, 2004). Dependency increases for the goals of understanding and orientation during times of uncertainty (Ball-Rokeach et al., 1999; Hirschburg et al., 1986; Loges, 1994). Comparing the dimensions, or goals, could provide insight into what individuals prioritize media for during disasters. For the goal of play, there were two items each for solitary play and interactional play in the questionnaire.

Goal of Expression

The dimension goal of expression accounted for three items in the MDT scale. While this is not an original dimension of Ball-Rokeach and DeFleur's (1976) MDT goals, it has recently been included in several studies as media is now more interactive and allows individuals to express themselves and their attitudes or emotions (Kim et al., 2015; Kim & Jung, 2017). This dimension goal measured respondents' attitudes and emotional goals when using media. Affective media effects is one of the least explored effects regarding the effect of media messages (Ball-Rokeach & DeFleur, 1976). This could potentially influence affective media effects such as attitudes and emotions. While this specific media dependency goal was not analyzed by itself, data was collected for the goal for the potential future use in other studies.

Media Dependency Scale

Thus, the scale measuring media dependency consisted of 15 items across four dimensions of goals. The responses offered to the items were “extremely often”, “very often”, “moderately often”, “sometimes,” and “never.” The items measuring dependency appear below, followed by the dependency dimension they are designed to measure:

How often do you use your most used media source for fulfilling each of the following goals?

1. To know what is going on in the world **(Social Understanding)**
2. To know the major current issues in my country **(Social Understanding)**
3. To observe how others cope with problems or situations like yours **(Personal Understanding)**
4. To gain insight into why you do some of the things you do **(Personal Understanding)**
5. To know how to interact with other people **(Self-Expression)**
6. To know how to react to others **(Self-Expression)**
7. To compare/share my thoughts or feelings with others **(Self-Expression)**
8. To decide where to get services (e.g., food, health, house maintenance) **(Action-Orientation)**
9. To get information on purchasing goods **(Action-Orientation)**
10. To discover better ways to communicate with others **(Interaction-Orientation)**
11. To get ideas about how to approach others in important or difficult situations **(Interaction-Orientation)**
12. To unwind after a hard day or week **(Solitary Play)**
13. To relax when you are by yourself **(Solitary Play)**
14. To have fun with friends or family **(Interactional Play)**

15. To be a part of events you enjoy without having to be there **(Interactional Play)**

Media Effects on COVID-19 Knowledge, Attitudes, and Behaviors

Almost all studies examining media dependency in times of crisis include items measuring awareness, attitudes, and behaviors related to risk (Lowrey, 2004; Sherman-Morris, 2006; Sherman-Morris et al., 2020). Respondents were asked about COVID-19 knowledge, attitude, and behavior to align with past studies and to measure media effects. The instrument used to measure media effects was based on recent past research on thoughts, attitudes, and behaviors during COVID-19. The measurement was proven to have satisfactory validity and reliability (Patelarou et al., 2020). Media effects were broken down into cognitive (knowledge), affective (attitude), and behavioral (compliance vs. noncompliance) dimensions. The PI theorizes that there will be a relationship between the media dependency goals and their corresponding media effects. This is theorized because if an individual uses media as a goal for fulfilling the goal of understanding, then they would theoretically have higher COVID-19 knowledge and therefore score higher on cognitive media effects.

In summary, four items measured COVID-19 knowledge, six items measured attitudes and emotions toward COVID-19, and seven items measured behaviors and decisions made surrounding COVID-19. Items under each dimension were summed. A total of 17 items measuring media effects were included in the scale measuring COVID-19 thoughts, attitudes, and behaviors.

Parasocial Relationship

The survey instrument that measured parasocial relationship (PSR) was an adaptation of Auter and Palmgreen's (2000) Audience-Persona Interaction Scale and the standard parasocial interaction (PSI) scale used in research developed by Rubin et al. (1985). This scale has been utilized in past research (Grant et al., 1991; Kim & Jung, 2017; Sherman-Morris, 2006). The results of these studies showed that the measure is reliable and valid. Questions were selected from each scale and modified where necessary to provide the best measure of PSR as it applies to COVID-19.

The scale asked the respondent to identify their favorite media personality who they turn to for information. This was a required open-answer field that allowed the respondent to type in any media personality's name. The instrument then moved on to ask the respondent to provide how much they agreed or disagreed with the next set of statements based on the media personality they typed in for their answer to the previous question. The scale can easily be applied to any type of media personality in any context with some minor changes, which is the approach the current study has taken. The items measuring PSR were measured using a 5-point Likert scale and appear below:

1. This person makes me feel comfortable, as if I am with a friend.
2. This person reminds me of myself.
3. I seem to have the same beliefs or attitudes as this person.
4. I would like to meet this person in person.
5. I look forward to watching them or interacting with them on the media medium(s) they are on.
6. I like to compare my ideas with this person.

7. This person has qualities similar to those of my friends.
8. I like the way they handle problems that come up.
9. They provide correct information about COVID-19 and other news.
10. I have sought out COVID-19-related information from this person for updates or clarity.

Respondents rated these statements using a Likert scale with answers ranging from "strongly agree" to "strongly disagree. The answers were coded as follows: strongly agree (5), somewhat agree (4), neither agree nor disagree (3), somewhat disagree (2), and strongly disagree (1). There were 10 items total for the PSR scale.

Data Analysis

Tools

To analyze the data, a combination of the Statistical Package for the Social Sciences (SPSS) and Qualtrics was utilized. The PI has access to SPSS and Qualtrics through Arkansas State University as a faculty member. Qualtrics is the survey platform that was utilized to collect the data. the Statistical Package for the Social Sciences (SPSS) was the platform utilized to analyze the data; SPSS is a statistical analysis software that provides an array of statistical tests. These tools were utilized to gather and analyze data for the study.

Hypotheses

H1: Baby Boomers will spend more time on television than any other medium during the height of COVID-19.

H2: Generation X will spend more time on television than any other medium during the height of COVID-19.

H3: Millennials will spend more time on social media than any other medium during the height of COVID-19.

H4: Generation Z will spend more time on social media than any other medium during the height of COVID-19.

H5: Those with high PSR rates will have gotten the COVID-19 vaccine or intend to get the vaccine if their preferred media personality recommended it.

H6: Those with high PSR rates will not have gotten the COVID-19 vaccine or do not intend to get the vaccine if their preferred media personality has not recommended it.

H7: Those who depend on media to fulfill the MDT goal of understanding will have higher cognitive media effects.

H8: Those who depend on media to fulfill the MDT goal of orientation will have higher behavioral media effects.

H9: Those who spend more time on media will have high PSR rates.

Data Analysis Methods

There were numerous hypotheses tests available to test the date of the current study. Since the sample was a nonprobability sample, there were limits on inference. Inferential statistics allows the researcher to take data from a sample and make inferences about the larger population of interest (Sirkin, 2005). Inferential statistics allows researchers to determine if the relationship between two or more variables can hold in the population of interest but requires a probability sample, or random sample, in order to make true inferences (Mitchell & Jolley, 2009). However, past studies have used tests of statistical significance to examine media dependency and parasocial relationship (PSR) with nonprobability samples (Alcañiz et al., 2006; Grant et al., 1991; Sherman-Morris et al., 2020). The next few paragraphs will discuss the statistical tests selected for this study, tie them to each hypothesis, and provide justification for the selection. Table 3.4 summarizes the hypotheses and their corresponding statistical tests.

Table 3.4

Hypotheses and Statistical Analysis

Hypothesis						
	Age	Time spent on media	Media dependency goals	Parasocial relationship	COVID-19 media effects	Statistical analysis
H1	IV	DV				ANOVA
H2	IV	DV				ANOVA
H3	IV	DV				ANOVA
H4	IV	DV				ANOVA
H5				IV	DV	Spearman correlation
H6				IV	DV	Spearman correlation
H7			IV		DV	Spearman correlation
H8			IV		DV	Spearman correlation
H9			IV	DV		Spearman correlation

H1, H2, H3 and H4 all tested the relationship between age and time spent on media platforms. In all four hypotheses, the independent variable is age (generational cohort), and the dependent variable is time spent on media. To test the relationship between the variables, an ANOVA was selected. An ANOVA was used five different times for each media platform to determine if there are differences. A post hoc test detected where the distinctions are.

H5 and H6 focused on examining the relationship between parasocial relationship (PSR) as the independent variable and vaccine intention as the dependent variable. To test the relationship between these two variables, a Spearman correlation test was selected. A Spearman correlation test is used when a Pearson correlation test is not appropriate. A Spearman correlation evaluates a monotonic relationship between two variables, which can be continuous or ordinal (Sirkin, 2005). This test has been used in past studies to examine the relationship between PSR and other ordinal variables. Sherman-Morris et al. (2020) utilized the Spearman correlation test to test for the relationship between PSR and multiple variables such as protective action, trust, and social media. This suggests that a Spearman correlation test could be used for the current study to test for the relationship between PSR and COVID-19 media effects.

H7 and H8 dealt with media dependency goals as the independent variables and media effects as the dependent variables. A linear regression was used to test the relationship between these two variables. For H7, the independent variable was the goal of understanding, while the dependent variable was cognitive media effects. For H8, the independent variable was the goal of orientation, and the dependent variable was behavioral media effects. H9 focused on media dependency goals as the independent variable and PSR as the dependent variable. For this hypothesis, a one-way ANOVA was selected since a comparison between group means was examined. A one-way ANOVA can distinguish if there are differences between three or more groups (Sirkin, 2005). For this test, media dependency goal was the independent variable, with PSR as the dependent variable.

Limitations and Delimitations

The current study had its limitations and delimitations, which should be discussed. First, a delimitation of this study was the selected population of interest. Another delimitation to this

study was that the sampling method limited generalizability and the ability to make inferences. Nonprobability samples limit a study's ability to make inferences about a population of interest and establish causal relationships (Mitchell & Jolley, 2009). This does create challenges when analyzing the data from a nonprobability sample. However, there is an increasing agreement among researchers that nonprobability sampling is necessary in order to adapt to an already changed and continually evolving world (Baker et al., 2013). Baker et al. (2013) argued in their *Report of the AAPOR Task Force on Non-Probability Sampling* that "nonprobability sampling has become especially prevalent as more and more surveys have moved online" (p. 7). Traditional probability sampling methods are often time-consuming and expensive. Some researchers estimate that probability samples with experimental design can cost $15,000 or more (Mullinix et al., 2015). There are also findings that nonprobability samples, such as convenience samples, yield similar and as good results as probability samples (Baker et al., 2013; Mullinix et al., 2015; Silver, 2012). In the recently published book *Disaster and Emergency Management Methods:Social Science Approaches in Application*, the authors argue that in disaster research, "many of the tools of probability surveys can be employed using nonprobability samples" (Borie-Holtz & Koning, 2021, p. 46). However, they do caution readers that researchers must be cautious when reporting the findings.

There are increasing challenges to conducting research with probability samples, particularly within disaster research. Rivera (2018, as cited in Borie-Hotlz & Koning, 2021, p. 43) writes that "pragmatism, including time and funding limitations often limits the decision and design options for researchers" in disaster research. Other challenges have been identified as well. There has been a long-term decline in response rates of telephone and mailer surveys, which has raised questions about nonresponsive bias (Baker et al., 2013). There are also

concerns about telephone survey coverage as most individuals now have cell phones instead of landlines now (Lehdonvirta et al., 2021). These limitations are "examples of practical issues that violate the pure assumptions of probability sampling" (Baker et al., 2013, p. 13). These factors have started a debate that is necessary and overdue on probability versus nonprobability in order to adapt to the technological advances (Baker et al., 2013). These arguments demonstrate that the sampling selection for the current study is acceptable but should use caution when reporting the findings.

Disaster research is no stranger to challenges to generalizability and other limitations. The generalizability of survey research after disasters has been questioned in the past. There is a concern that surveys conducted after a disaster are not representative of the population affected by the disaster because surveys may miss those who lack access to technology or those who have been displaced due to the disaster (Stallings, 2007). However, COVID-19 was a pandemic and did not displace people like a hurricane or tornado might. While some in the population of interest might be missed due to access to technology, 93.5% of Arkansans have access to Internet (BroadbandNow, 2021). This suggests that this bias was limited when collecting data.

While a probability sample would have increased the generalizability of the study, experimental research is time-consuming. Time is one of the three main challenges to disaster research identified by Stallings (2007). Disaster research has to absorb the immediacy of the event (Institute of Medicine, 2015), and it is vital for disaster researchers to gather data in a timely manner (Stallings, 2007). It becomes increasingly difficult to gather data later on in the disaster process, particularly when dealing with perishable data. Gathering perishable data soon after a disaster can reveal vital findings that could otherwise be lost (Stallings, 2007). COVID-19

is seemingly receding, and therefore any perishable data, particularly that focused on thoughts, attitudes, and behaviors, should be collected soon to avoid losing it completely.

Instrument

The nature of the instrument provided limitations to the current study. Respondents must have had Internet access and/or a smartphone to complete the survey. This limited the respondents to individuals who had Internet access and/or a smartphone or other computer device. However, it is reported that 93.5% of Arkansans have access to Internet, so this limitation is somewhat limited (BroadbandNow, 2021).

Thus, while there were several challenges to this study due to the design, the initial collection of perishable data during the COVID-19 pandemic can lay a foundation for future studies. Future studies could improve upon the current study if COVID-19 were to surge again or in the case of another public health emergency.

Threats to Validity

A serious threat to internal validity with the selected study design was the instrument. The online environment of the questionnaire created a lack of control over the conditions in which the questionnaire was completed. There was no way to control a person completing the questionnaire multiple times. An online questionnaire also creates the issue of self-report (Mitchell & Jolley, 2009). Respondents' answers may not have reflected the truth in their answers on the questionnaire, or they or may not have remembered the information needed to correctly answer a question. Since the COVID-19 pandemic has been a chronic disaster in the United States since March 2020, respondents may have had a better time recollecting their media

consumption behavior. Social desirability bias, which falls under self-report, is also a possible factor in individuals' answers. Social desirability bias occurs when respondents provide an answer that they view as socially acceptable or desirable (Mitchell & Jolley, 2009). With the present cultural and political climate surrounding COVID-19, some may have been hesitant to truthfully answer regarding their attitude or behavior toward COVID-19. Others may not have been truthful about the time spent on their preferred media medium in order to appear less dependent on mass media. It is also difficult to confirm if there truly is a causal relationship between the examined variables since there was no official treatment (Mitchell & Jolley, 2009). This was a threat to external validity. However, a larger sample size helps overcome these threats to internal validity and helps improve the external validity, even though due to the nature of the study, the results could not truly be generalizable.

Mitigation Strategies

There are methods to enhance claims of representativeness of nonprobability samples. Weighting may be applied to the data to bring it in line with the known population totals (Baker et al.., 2013). Methods such as poststratification, prediction modeling, and statistical matching are applied to data taken from nonprobability samples to mitigate biases (Cornesse et al., 2020). Other studies simply evaluate the nonprobability samples by assessing how closely the final data resembles the population in terms of characteristics (Cornesse et al., 2020). The demographics of the population of interest will be compared to the sample to compare representativeness (Frey, 2018). The limitation of the instrument is not something that can be mitigated, but since 93.5% of Arkansas residents are reported to have access to the Internet (BroadbandNow, 2021), this is not a limitation that should significantly affect the study. The threats to internal and external

validity cannot be overcome, but the biases and representativeness will be examined. This study is not intended to be a silver bullet for individuals' thoughts, attitudes, and behaviors during a disaster but rather intended to gain a better understanding and insight into the topic. This may lead to future research that can improve upon this study.

Conclusion

This study was a quantitative study that intended to sample Arkansas residents through an online questionnaire. The sample was divided into generational cohorts to compare the thoughts, attitudes, and behaviors toward COVID-19 between the cohorts. All participation was voluntary and anonymous. The sampling method selected was a nonprobability approach using a convenience sample. Reasoning behind the decision to use a nonprobability sample was discussed along with justification. The instruments that were used were all adapted from existing and validated instruments used in previous studies. While no true inferences can be made due to the decision to use a nonprobability sample, statistical tests were used to analyze the data. Tests used to examine the data were discussed and will be discussed in the chapter focusing on the results. Limitations and delimitations were addressed with a few select ways to mitigate some of the delimitations and limitations. However, it is noted that there are limitations to the current study due to the design.

Chapter 4: Results

The current chapter will discuss the results of the survey and explain the statistical tests conducted during data analysis. The goals of the online survey were to measure individuals' dependency on various media platforms, their attitudes toward their favorite media personalities, and attitudes and behaviors regarding COVID-19 media effects. An online survey was used to collect data from residents in the state of Arkansas. A nonprobability sample was used due to the convenience of collecting data along with the time-sensitive nature of collecting data during the COVID-19 pandemic. In addition to collecting information on COVID-19 knowledge, attitudes, and behaviors, the survey collected basic demographic data, including gender, race, and which generational cohort respondents belonged to. While this study uses a convenience sample, inferential statistical tests were used to analyze the data. While the selection of a convenience sample does limit the study's ability to make inferences, past studies have used tests of statistical significance to examine the theories used in this study with nonprobability samples (Alcañiz et al., 2006; Grant et al., 1991; Sherman-Morris et al., 2020). It was deemed acceptable to use a convenience sample due to the urgency of collecting perishable data during a global pandemic. This chapter begins with discussing the descriptive statistics for the study, including demographics of the sample. Then, the chapter discusses the inferential tests used to analyze the data along with the findings of those tests. The chapter concludes with discussing which hypotheses were supported and which were not.

Descriptive Statistics

Data was collected in an online survey in a nonrandom sample of individuals living in the state of Arkansas. The survey was conducted throughout the months of July 2021 through August 2021. The survey was available for approximately four weeks. The race demographics

could be more representative of Arkansas' demographics. A majority of residents in the state of Arkansas are White (79%) (United States Census Bureau, n.d.). The second-largest group in Arkansas is Black/African American (15.7%), followed by Hispanic/Latino (7.8%), Asian (1.7%), Hawaiian/Pacific Islander (0.4%), and American Indian/Alaska Native (1.0%) (United States Census Bureau, n.d). A total of 93.96% of the sample identified as White, while 2.01% identified as Black, 1.34% identified as Native American/American Indian, 1.34% identified as Asian/Pacific Islander, 0.67% identified as Hispanic or Latino, and .067% identified as Other (as found in Table 4.1). Potential reasons for the lack of diversity in respondents is addressed in the Limitations section in Chapter 5.

Generational cohort demographics varied among respondents. A total of 23.83% of respondents identified as Baby Boomers, 37.25% identified as Generation X, 31.21% identified as Millennials, and 6.38% identified as Generation Z. There are a few potential reasons for such a low response from Generation Z. First, this survey was conducted during the summer months, which is when members of Generation Z, primarily comprised of college-aged individuals, are out of school in less-structured environments. The second potential reason for a lack of Generation Z responses is due to the current age range of the generational cohort. Generation Z is largely comprised of individuals under the age of 18, which limits the number of individuals who could respond since this study required respondents to be 18 years or older. Since Generation Z is also currently a younger generation; interest in COVID-19 could be low, which could lead to a decreased interest in taking a survey on COVID-19.

Table 4.1

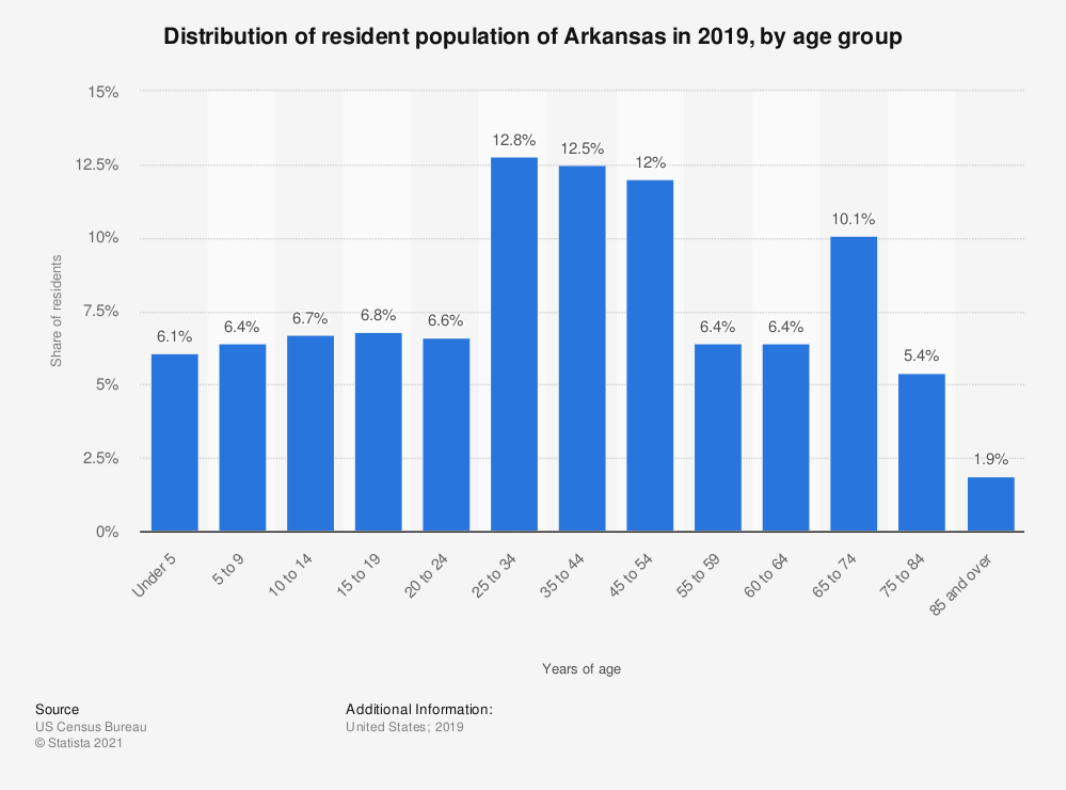
Demographic Descriptions

		Frequency (n)	Percent (%)
Race	White	280	93.96%
	Black	6	2.01%
	Native American/American Indian	4	1.34%
	Asian/Pacific Islander	4	1.34%
	Hispanic/Latino	2	.67%
	Other	2	.67%
Sex	Male	100	33.56%
	Female	198	66.44%
Generational Cohort	Silent Generation	4	1.34%
	Baby Boomers	71	23.83%
	Generation X	111	37.25%
	Millennials	93	31.21%
	Generation Z	19	6.38%

Despite the low response rate among Generation Z, the demographics of generational cohorts are fairly representative of the Arkansas population's generational cohort demographics, as seen in Table 4.2. Younger age groups that fall within the Generation Z age range in the state of Arkansas are not nearly as large as other generational cohorts. While a larger response rate among Generation Z respondents would be more desirable, it is fairly representative of the demographics in Arkansas.

Table 4.2

Distribution of Resident Population of Arkansas in 2019, by Age Group



Note. From "Population Share of Arkansas by Age Group 2019*"*, by Statista Research Department, 2021b (https://www.statista.com/statistics/1021884/arkansas-population-share-age-group/). In the public domain.

Inferential Statistics

This study used inferential statistics to analyze the data to determine if any relationships existed between the variables. While a convenience sample was used, which limits the study's ability to make any inferences, past studies have used inferential statistical tests to examine *media dependency* and *parasocial relationship* (Alcañiz et al., 2006; Grant et al., 1991; Sherman-Morris et al., 2020). It seems acceptable to follow in those studies' footsteps and use inferential statistics to analyze the data collected for this study.

Data Treatment

A total of 377 responses were collected through the survey. A total of 79 respondents did not complete the survey. Those respondents' answers were filtered out, which left 298 responses. Interestingly, the 79 respondents who did not complete the survey stopped taking the survey when the parasocial relationship portion of the survey was presented. Eight respondents for the parasocial relationship section used the open-answer question that asked them to identify their favorite media personality to express that they felt the survey's goal was to try and identify their political views or to express that media could not be trusted due to political influence. The survey was anonymous, so no political affiliation could have been tied to any of the respondents. These responses were part of the unfinished responses that were filtered out before data analysis was conducted.

To assess the dependent variable, *total media dependency*, the 15 items were tested for reliability, and with an alpha of .89, the data were summed and then recoded into five rankings. Three separate variables were also created by summing each type of media dependency goal (understanding, orientation, expression). The variable *goal of understanding* was tested for reliability, and with an alpha of .80, was summed with the four items on how respondents used their preferred media for understanding during the COVID-19 pandemic. This variable was then recoded into five rankings to match the original Likert scale response. The variable of *orientation* was tested for reliability, and with an alpha of .88, the seven items were summed that asked individuals about how they used their preferred media to fulfill attitude or expression and behavioral goals during COVID-19. This variable was then recoded into five rankings to match the original Likert scale response.

The variable *parasocial relationship* was tested for reliability. It had an alpha of .92. It was summed through the 10 items from the scale and then recoded into five rankings as displayed in the survey. Each subscale of the media effects was tested for reliability. Respondents were asked about their COVID-19 knowledge (to represent cognitive effects), their attitudes and emotions during the height of COVID-19 (to represent affective effects), and about their behavior regarding preventive behaviors during COVID-19 (to represent behavioral effects). *Cognitive media effects* were tested for reliability and was found to have an alpha of .85. Before testing *affective media effects* for reliability, scale items 1 and 5 in the affective media effects scale were reverse coded. A reliability analysis found that the alpha was low (alpha = .267). Items 1 and 6 were found to have negative correlations, so they were deleted from the scale. Items 1 and 6 asked respondents about their emotions during the COVID-19 pandemic. Item 1 asked respondents to rate the statement on a Likert scale from 1 to 5,with 1 being "strongly disagree" and 5 being "strongly agree". The statement in Item 1 is:

"I felt fear during the COVID-19 pandemic."

Statement 6 asked respondents to rate the reverse question of Item 1, which is:

"I felt calm during the COVID-19 pandemic."

The remaining four items in the *affective media effects* were retested for reliability with an alpha of .75, which was deemed to be reliable enough for analysis. Items 4, 5, and 6 in the *behavioral media effects* scale were reverse coded, and a reliability test found an alpha of .89, which was deemed to be reliable. *Behavioral media effects* were summed into a variable. After all subscales were found to be reliable, the overall media effects scales were tested for reliability, and an alpha of .87 was found. All subscales of media effects were recoded into the five original Likert scale rankings.

The independent variable, *time spent on media during the height of COVID-19,* was left separated by media platforms. Respondents were asked to approximate how many minutes per day they spent on six different media platforms. This variable was used to examine which generational cohorts spent more time on the various media platforms. Once all data had been cleaned and treated, the data were ready for analysis.

Results

This study examined 9 hypotheses. Together, these hypotheses examined the various relationships between generational cohorts, media dependency, parasocial relationship, and media effects. The following hypotheses that were used to guide data analysis for this study:

H1: Baby Boomers will spend more time on television than any other medium during the height of COVID-19.

H2: Generation X will spend more time on television than any other medium during the height of COVID-19.

H3: Millennials will spend more time on social media than any other medium during the height of COVID-19.

H4: Generation Z will spend more time on social media than any other medium during the height of COVID-19.

H5: Those with stronger parasocial relationships will have gotten the COVID-19 vaccine or intend to get the vaccine if their preferred media personality recommended it.

H6: Those with stronger parasocial relationships will not have gotten the COVID-19 vaccine or do not intend to get the vaccine if their preferred media personality recommended not getting the vaccine.

H7: Those who depend on media to fulfill the MDT goal of understanding will have higher cognitive media effects.

H8: Those who depend on media to fulfill the MDT goal of orientation will have higher behavioral media effects.

H9: Those who spend more time on media will have high PSR rates.

H1 through H4

Respondents were asked about the time spent on various media platforms "during the height of the pandemic" (found in Table 4.3). This phrasing was used instead of a specific timeline to provide flexibility among respondents as different areas experienced different COVID-19 case peaks at different time periods throughout 2020 and 2021. The rationale was to encourage respondents to think about their own personal experience in the pandemic and reflect on their media use during that time. To test H1 through H4, an ANOVA was used to examine each media platform comparing time spent on media platforms during the height of the COVID-19 pandemic. There was homogeneity of variances, as assessed by Levene's test for equality of variances for television ($p < .05$), newspaper ($p < .001$), and social media ($p < .05$). The assumption of homogeneity of variances was violated for digital articles ($p = .129$), radio/podcast ($p = .154$) and other ($p = .183$). A Tukey–Kramer post hoc test was used to understand the differences between the groups. A Tukey–Kramer post hoc test was selected to analyze the data due to the unequal group sizes.

First, the homogeneity of variances was examined for time spent on digital articles ($p= .129$) during the height of COVID-19. As previously mentioned, the assumption of homogeneity of variances was violated for digital articles and the ANOVA found no significant differences in time spent on digital articles ($p= .07$) (found in Table 4.4). Since no significant results were found, a post hoc was not conducted.

Another ANOVA was used to analyze the time spent reading newspapers during the height of COVID-19. The results found that there was a homogeneity of variances for time spent reading newspaper ($p<.001$). However, results for ANOVA indicate that there were no

significant differences as found in Table 4.5. Since the ANOVA results did not find significant results, a post hoc analysis was not used to further examine the data.

Table 4.3

Time Spent on Media Platforms During the Height of COVID-19

	Less than 10 minutes per day	10–30 minutes per day	31–60 minutes per day	1–2 hours per day	2–3 hours per day	3+ hours per day
Digital articles	65 (22.57%)	90 (31.25%)	68 (23.61%)	43 (14.93%)	12 (4.17%)	10 (3.47%)
Newspaper	233 (83.81%)	30 (10.79%)	12 (4.32%)	2 (0.72%)	0 (0.0%)	1 (0.36%)
Radio/podcast	133 (48.19%)	63 (22.83%)	35 (12.68%)	25 (9.06%)	12 (4.35%)	8 (2.90%)
Social media	70 (24.22%)	48 (16.61%)	55 (19.03%)	47 (16.26%)	28 (9.69%)	41 (14.19%)
TV	60 (20.83%)	46 (15.97%)	58 (20.14%)	58 (20.14%)	34 (11.81%)	32 (11.11%)
Other	59 (80.82%)	5 (6.85%)	4 (5.48%)	2 (2.74%)	3 (4.11%)	0 (0.00%)

Table 4.4

One-Way Analysis of Variance of Time Spent on Digital Articles During the Height of COVID

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	3	11.75	3.92	2.43	.07
Within groups	319	514.83	1.61		
Total	322	526.58			

Table 4.5

One-Way Analysis of Variance of Time Spent on Newspaper During the Height of COVID

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	3	1.74	.581	1.55	.201
Within groups	308	115.10	.374		
Total	311	116.84			

To examine the time spent on radio/podcasts during the height of COVID-19, an ANOVA was used. The assumption of homogeneity of variances was violated for radio/podcasts ($p = .154$). The ANOVA (Table 4.6) found that there were no significant differences between the generational cohorts in their time spent listening to radio/podcasts during the height of COVID-19 ($p = .303$). Since the ANOVA did not find significant results, a post hoc analysis was not conducted to further examine the data.

Table 4.6

One-Way Analysis of Variance of Time Spent on Radio/Podcast During the Height of COVID

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	3	6.39	2.13	1.218	.303
Within groups	307	537.67	1.75		
Total	310	544.07			

An ANOVA was also used to examine if there were differences between generational cohorts' time spent on social media during the pandemic (found in Table 4.7). The ANOVA found that there is a difference between the generational cohorts in time spent on social media ($p < .000$, $F = 7.03$). The Tukey post hoc test (found in Table 4.8) found that Millennials and Generation Z spent more time on social media than Baby Boomers during the height of COVID-19. There was an increase in the time spent score from Baby Boomers ($M = 2.50$, $SD = 1.36$) to Millennials ($M = 3.33$, $SD = 1.87$), a mean increase of .833, 95% CI (.17, 1.50). The results also indicated that Generation Z ($M = 4.15$, $SD = 1.67$) spent more time on social media compared to Baby Boomers (M = 2.50, SD = 1.36), with a mean increase of 1.65, 95% CI (.66, 2.64). Generation Z ($M = 4.15$, $SD = 1.67$) spent more time on social media compared to Generation X ($M = 3.15$, $S D = 1.6$), with a mean increase of 1.01, 95% CI (.09, 1.93).

Table 4.7

One-Way Analysis of Variance of Time Spent on Social Media During the Height of COVID

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	3	57.70	19.23	7.03	.000
Within groups	320	875.27	2.74		
Total	323	932.97			

Table 4.8

Post-Hoc Mean Comparisons of Time Spent on Social Media During the Height of COVID

Generational Cohort (I)	Generational Cohort (J)			
	Baby Boomers	Generation X	Millennials	Generation Z
Baby Boomers				
Generation X	0.65			
Millennials	0.83*	0.19		
Generation Z	1.65*	1.01*	0.82	

*The mean difference is significant at the 0.05 level.

An ANOVA was used to examine the variance between generational cohorts' time spent on television during the height of COVID-19. There was homogeneity of variances, as assessed by Levene's test for equality of variances for television ($p < .05$). The ANOVA found that there

is a difference between the generational cohorts in time spent on television ($p < .011$; $F = 3.79$) as found in Table 4.9. A post hoc analysis was used to examine the specific differences between the generational cohorts. The results for the Tukey–Kramer post hoc test found that there were significant differences (found in Table 4.10) between Millennials ($M = 2.79$, $SD = 1.81$) and Generation X ($M = 3.46$, $SD = 1.55$) in time spent on television with an increase of 0.68 in time spent on television between the two groups.

Respondents were asked which media they used most often to stay up to date with news, current events, and trends. Theoretically, each generational cohort's primarily identified media platform would align with the platforms they identified as spending the most time on. A descriptive analysis found that 52.11% (n = 37) of Baby Boomers identified television as the media source they utilized the most to stay up to date with news. A majority of Generation X respondents (37.84%, n = 42) identified television as their preferred media platform during the COVID-19 pandemic. However, Generation X had two other media platforms that were almost preferred as much as television. Respondents who identified as Generation X also frequently used digital articles (25.23%, n = 28) and social media (26.13%, n = 29) to stay informed during COVID-19. Millennial respondents indicated that they preferred to use social media platforms (43.01%, n = 40) during COVID-19. Generation Z also preferred to use social media platforms (63.16%, n = 12) during the COVID-19 pandemic.

While the post hoc tests did not find significant differences between Baby Boomers and other generational cohorts' time spent watching television, comparing the means for Baby Boomers across all media platforms prove that television is their preferred media platform. H1 was supported as the mean results for the ANOVA test show that Baby Boomers spent more time on television ($M = 3.17$) compared to every other media platform. H2 was supported as

Generation X spent more time on television compared to any other medium (*M* = 3.46). The post hoc tests found significant differences between Generation X (M = 3.46, SD = 1.55) and Millennials (M = 2.79, SD = 1.81) in time spent watching television (p = .011). H3 was also supported as Millennials indicated that they spent more time on social media (*M* = 3.33) than on any other platform during the COVID-19 pandemic when ANOVA means were compared across media platforms. The post hoc test found a significant difference between Millennials and Baby Boomers in time spent on social media during the height of the pandemic. H4 was supported as Generation Z indicated that they spent more time on social media (*M* = 4.15) than on other media platforms. The post hoc test found significant mean differences between Generation Z and Baby Boomers. The post hoc test also found significant differences between Generation Z and Generation X in time spent on social media during the height of COVID-19.

Table 4.9

One-Way Analysis of Variance of Time Spent on Television During the Height of COVID

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	3	29.50	9.83	3.79	.011
Within groups	318	825.95	2.60		
Total	321	855.44			

Table 4.10

Post-Hoc Mean Comparisons of Time Spent on Television During the Height of COVID

Generational Cohort (I)	Generational Cohort (J)			
	Baby Boomers	Generation X	Millennials	Generation Z
Baby Boomers				
Generation X	0.29			
Millennials	-0.38	-0.67*		
Generation Z	0.40	0.12	0.79	

*The mean difference is significant at the 0.05 level.

H5 and H6

Respondents were asked about their vaccine intention and behavior based on their favorite media personality's recommendation. Respondents chose from "strongly agree", "somewhat agree", "neither agree nor disagree", "somewhat disagree", and "strongly disagree". The questions asked in relation to the hypotheses are:

"If my favorite media personality were to recommend getting the COVID-19 vaccine, I would consider getting the vaccine"

"If this person were to refuse the COVID-19 vaccine or recommend refusing the vaccine, I would refuse the vaccine."

A Spearman correlation was selected to test for both H5 and H6. This test was selected since both variables were Likert scale variables. The basic requirements of the Spearman's correlation are that there must be two variables that are measured on a continuous and/or ordinal scale, and that the two variables represent paired observations (Sirkin, 2005). Spearman's correlation determines the degree to which a relationship is monotonic. For a relationship to be monotonic, the value of one variable would have to increase as the other variable's value increased (Sirkin, 2005). The value of a variable could also decrease as the other variable's value decreased (Sirkin, 2005). However, a monotonic relationship is not strictly an assumption of the Spearman's correlation (Laerd Statistics, 2018).

To test the assumption of a monotonic relationship for H5, a scatterplot was examined for variables *parasocial relationship* and *positive vaccine behavior* (respondents would get the vaccine if their favorite media personality recommended it). Inspection of the scatterplot suggested that a monotonic relationship did not exist. However, once the Spearman's correlation test was examined, the results indicate that there was a strong correlation between parasocial relationship and positive vaccine behavior, r_s (292) = .472, p < .01. This suggests that the null hypothesis can be rejected and therefore H5 is supported.

A Spearman's correlation was used to also examine H6 which focused on negative vaccine behavior in relation to parasocial relationship. Participants were asked if they would either consider not getting the vaccine or refuse to get the vaccine based on if their identified favorite media personality recommended to not get the vaccine. To test the assumption of a monotonic relationship for H6, a scatterplot was also examined for the variables *parasocial relationship* and *negative vaccine behavior* (respondents would not get the vaccine if their favorite media personality recommended not getting it). The scatterplot found that there was not

a monotonic relationship. A Spearman's correlation supported the scatterplot results as the test indicated no relationship between *parasocial relationship* and *negative vaccine behavior*, r_s (292) = .009. If a Spearman's correlation coefficient value is close to zero, it indicates no relationship. This indicates that the null hypothesis cannot be rejected and therefore, H6 is not supported.

A further examination of the descriptive data found that a majority of respondents selected the neutral "neither agree nor disagree" option for both survey questions regarding the influence of media personalities and vaccine behavior. A majority of respondents selected the neutral answer "neither agree nor disagree" in response to whether their favorite media personality would influence their vaccine behavior or intention. A total of 42.28% (n = 126) of respondents selected the neutral answer based on if their favorite media personality was in favor of the vaccine. The same number of respondents (42.28%, n = 126) selected the neutral answer based on if their favorite media personality was not in favor of the vaccine. This could potentially skew the results as it would seem the same number of respondents selected the neutral response for both items in the survey. Interpretation of possible reasons why participants selected the neutral response will be discussed in the next chapter.

H7 and H8

To test H7, a Spearman correlation was used to examine the data. A Spearman correlation was selected since the two variables examined in H7 were Likert scale items. The basic requirements of the Spearman's correlation are that there must be two variables that are measured on a continuous and/or ordinal scale, and that the two variables represent paired observations. A scatterplot was examined to identify if a monotonic relationship existed between

the goal of understanding within media dependency and cognitive media effects. Visual inspection of the scatterplot indicated that a monotonic relationship does not exist between the two variables. The Spearman's correlation results indicated that there is not a relationship between the goal of understanding and cognitive media effects, r_s (292) = .113. These results indicate that H7 is not supported.

A Spearman's correlation was also utilized to examine H8, which focused on the relationship between the goal of orientation within media dependency and behavioral media effects. A scatterplot of the two variables suggested that there is no monotonic relationship but the Spearman's correlation test produced significantly statistic results, r_s (292) = .135, $p < .05$. This suggests that the null hypothesis can be rejected and therefore H8 is supported. Further interpretation of the conflicting results will be discussed in the Discussion, Recommendations, and Conclusion chapter.

H9

To test H9, a Spearman's correlation was used to examine the relationship between overall *media dependency* and *parasocial relationship*. This test was chosen to examine H9 because both variables were Likert scale variables. A Spearman's correlation requires that there must be two variables that are measured on a continuous and/or ordinal scale, and that the two variables represent paired observations (Sirkin, 2005). A Spearman's correlation determines the degree to which a relationship is monotonic. While a visual inspection of the scatterplot did not suggest a monotonic relationship exists between media dependency and parasocial relationship, the Spearman's correlation test indicates statistically significant results, r_s (292) = .242, $p < .01$. This indicates that the null hypothesis can be rejected and that H9 is supported. Possible

interpretations of the conflicting results between the scatterplot and Spearman's correlation will be discussed later on in the text.

Summary

The results in this chapter highlight the relationship between *media dependency*, *parasocial relationship*, and *media effects* during COVID-19. The findings from this study are informative of the attitudes and behaviors experienced during the COVID-19 pandemic in relation to media dependency and parasocial relationship. Older generations such as Baby Boomers and Generation X spent more time on television compared to other media platforms during the height of COVID-19, while younger generations such as Millennials and Generation Z spent more time on social media. Identifying age groups' preferred media platforms can be useful for those who communicate with the public during crises and disasters. Research about age groups' preferred media platforms can help identify best practices to communicate with specific groups during disasters.

This study also examined vaccine behavior and whether media personalities influenced that behavior. While no relationship was found between the two variables, this still provides useful information for risk and crisis communication professionals as well as any individuals in any discipline who might be involved in developing messages for the public during public health emergencies. Knowing which factors might not influence vaccine behavior just paves the way for future studies to examine other potential factors. Overall, parasocial relationship was not found to have a relationship with media effects, which is still useful information for academics and professionals involved in disseminating messages to the public.

Media dependency goals' relationship with media effects is still something that should be explored further in future studies. The findings are conflicting, and even when found to have

significant results, there is a small effect size. Further exploration could potentially reveal more knowledge about this relationship, which could be informative and valuable. The better understanding that researchers and professionals can have about the relationship between media dependency goals and media effects, the better risk and crisis communication strategies can be developed using media dependency as a predictor.

Lastly, this study examined the relationship between media dependency goals and parasocial relationship. The findings show that there is a relationship between the two variables, which is a helpful finding. This suggests that media dependency plays a role in the parasocial relationship process. The significance of this relationship should be examined further, but these findings are still valuable for the current pandemic as it is not entirely over.

All of the findings from this study provide a bit more clarification on the complicated relationships involved in mass media and the public during disasters. While some of the findings provide opportunities for future studies to expand upon, the information discovered in this study is still valuable for practitioners and researchers involved in communicating with the public during COVID-19 or future disasters. Complex relationships take time to understand, and with the current ongoing pandemic, the opportunity to examine these relationships is timely. This chapter discussed the descriptive statistics for this study, which included an overview of the demographics of the sample. The inferential statistics used to analyze the data were discussed along with the findings of each test. The findings in relation to the hypotheses were discussed as well. The implications of these findings and potential interpretations will be discussed in the next chapter along with opportunities for future research and application to practice.

Chapter 5: Discussion, Recommendations, and Conclusion

The purpose of this study was to examine individuals' behavior along with the role of the mass media and media personalities in response to the COVID-19 pandemic. The current study sought to investigate whether mass media and media personalities played a role in influencing individuals' thoughts, attitudes, and behaviors regarding protective actions during the COVID-19 pandemic and, if so, how that influence affected individuals' thoughts, attitudes, and behaviors. The findings from this study are significant and can contribute to the fields of emergency management, public health, communication, mass media, and other disciplines when developing messages during disasters or pandemics. Since COVID-19 is a novel virus and has caused a worldwide pandemic, the findings from this study can help officials and subject-matter experts better tailor messages in the future. This chapter discusses and synthesizes the results of the study and limitations and also presents implications for practice, recommendations, and opportunities for future research.

Discussion

The relationships between media dependency theory (MDT), parasocial relationship (PSR), and media effects were examined in this study. Increased dependency on media platforms and PSR have been found in the past to influence cognitive, affective, and behavioral media effects (Gong et al., 2021; Grant et al., 1991; Papa et al., 2000; Perse, 1990). Examining these influences within the context of COVID-19 provides insight into why and how individuals' make decisions during ambiguous times, particularly a pandemic. In addition, an overall examination of these theories and their effects provides a better understanding of the topics. This study was concerned with the following research questions:

RQ1: What is the relationship between media dependency and individuals' thoughts, attitudes, and behaviors regarding COVID-19?

RQ2: What is the relationship between parasocial relationship and individuals' thoughts, attitudes, and behaviors regarding COVID-19?

RQ3: What are the different media usage patterns between the generational cohorts?

These questions were followed up with 9 hypotheses in total. The following sections address the answers found to the study's research questions and offer possible interpretations of the data.

Generational Cohorts' Media Preferences

This study first examined which media platforms the four generational cohorts preferred. This topic is comprised of H1, H2, H3, and H4. First, H1 and H2 were both supported as it was found that Baby Boomers and Generation X both preferred using television to seek information about COVID-19 during the height of the pandemic. This aligns with the *Reuters Institute Digital News Report,* which found that older generations still use television as their main source for news and information since they are not as Internet-savvy (Newman et al., 2019). Individuals who were not emersed in digital technology in their formative years have been referred to as "digital immigrants" (Prensky, 2001), which falls under the Baby Boomer and Generation X generational cohorts. Other studies support the findings that Baby Boomers prefer traditional media such as television over social media (Coleman & McCombs, 2007). Traditional media sources like television have been linked to higher rates of trust among Baby Boomers during election campaigns (Towner & Muñoz, 2016). However, other studies have found that Baby Boomers are using social media more to find and share health information (Papp-Zipernovszky et al., 2021; Tennant et al., 2015). This could be explained by the popularity of social media

along with the increased usage of social media during the pandemic. Other studies claim that Baby Boomers are the fastest adopters of social media among the generational cohorts (Randall et al., 2015). This could lead to future studies examining the changing media behavior and preferences among specific age groups. Preferences and behavior are not static and will evolve with time. It is important to examine these changes and the reasons why to better understand what influences these changes.

H3 and H4 were also supported as Millennials and Generation Z were found to prefer to use social media platforms to access information about COVID-19 during the height of the pandemic. This also aligns with the Reuters Institute report that found Generation Z prefer using social media and mobile alerts to access news (Newman et al., 2019). Millennials and Generation Z have been found to prefer to receive health-related information on social media compared to Baby Boomers and Generation X (Cherrez-Ojeda et al., 2020). Millennials and Generation Z are often referred to as "digital natives" as they have spent either all of their lives or almost all of their lives in the digital environment (Bolton et al., 2013; Sidorcuka & Chesnovicka, 2017). Since Millennials and Generation Z have grown up in a digital environment, accessing information and news about current events on digital platforms would be preferred among these populations. Examining the preferences and behavior on specific platforms among Millennials and Generation Z could be the next step in further understanding their media behavior and the decisions that derive from the behavior. Studies have found that while Millennials and the older generational cohorts will interact with other generational cohorts, Generation Z prefers to only interact with their own cohort on social media (Dida et al., 2021; Yadav & Rai, 2017). This could lead to certain isolation in information and news about current events. Further examining the behavior of Millennials and Generation X on their preferred media platforms can provide a

broader understanding of their preferences, behaviors, and decisions they make based around media use.

The findings for H1, H2, H3, and H4 were not surprising based on the findings from past studies. Generational cohorts share similar preferences, values, and traits. Growing up with a specific media platform as the primary source of information for that generation would more than likely influence generational cohorts' media platform preferences during times of ambiguity. While each generational cohort was found to use a media platform more than the others, each cohort still used more than one media platform to seek information. This suggests that while generational cohorts do have preferred media platforms, they do not solely use their preferred media platform. Risk communicators, emergency managers, and public health experts should take care to ensure that messages are disseminated on multiple media platforms in order to reach all generational cohorts. The more information gathered on generational cohorts' media preferences and behavior during times of stress, the better researchers and professionals will be able to understand the decisions made during disasters and pandemics. Behavior is not static, and the evolving behavior regarding media preferences should be examined so that public health messages and other crisis communication messages can be targeted for specific groups appropriately. Further examination of these evolving behaviors is encouraged for future studies in order to better understand media preferences and habits among groups.

Parasocial Relationship and Media Effects

H5 and H6 focused on the relationship between parasocial relationship (PSR) and media effects, specifically focusing on vaccine behavior. The correlation test results for H5 found that there was a significant relationship between PSR and pro-vaccine behavior. The results for H6

found that there was no relationship between PSR and antivaccine behavior. This does not align with past studies that have examined PSR and media effects. Past studies have found that PSR does influence cognitive (Papa et al., 2000; Perse, 1990), affective (Derrick et al., 2008; Hoffner & Cohen, 2012; Perse, 1990), and behavioral (Papa et al., 2000) effects. However, no other studies have examined PSR and its relationship with vaccine behavior. This is the first known study examining the relationship between PSR and vaccine behavior or intention. The only comparable study was conducted by Sherman-Morris et al. (2020), who examined the relationship between PSR and hurricane protective actions. The study also found no relationship between PSR and protective actions. While H5 was supported, H6 was not. A possible explanation for this is due to the high vaccination status rates among respondents. Since a majority of respondents indicated that they already had the vaccine or intend on getting the vaccine could potentially play a role in their response to the question regarding the influence of media personalities' recommendation to get the vaccine. It could be assumed that those who have received the vaccine listened to the media personality or subject-matter expert who recommended to get the vaccine. Many respondents listed Dr. Anthony Fauci and Arkansas governor Asa Hutchinson as their preferred media personality for COVID-19 information. Both media personalities are pro-vaccine which suggests that they might have influenced the respondents in this study to get the vaccine. While there was no relationship found in this study between antivaccine behavior and media personalities, other studies could examine the relationship between PSR and vaccine behavior, focusing on particular media personalities tied to public health.

The findings for H5 align with studies on celebrities' influence on health behaviors. For example, when actor Charlie Sheen announced his HIV diagnosis, HIV testing kit sales almost

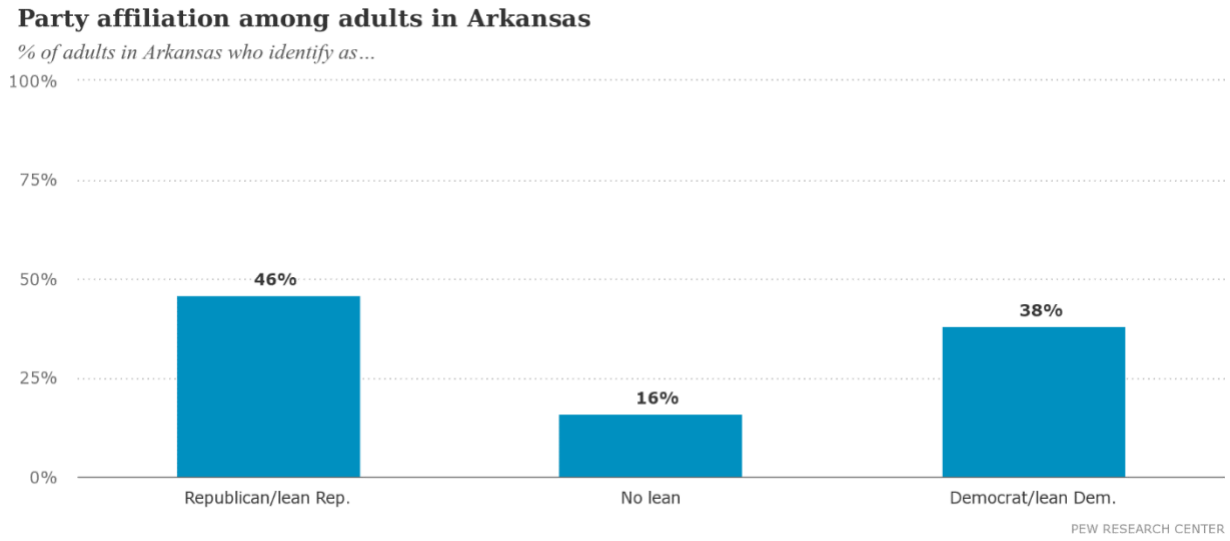
doubled, rendering the term the "Charlie Sheen effect" (Allem et al., 2017). Other celebrities' health-related events or news have also influenced past audiences' behavior and attitudes. Katie Couric influenced an increase in colon cancer screening (Cram et al., 2003), Freddie Mercury influenced public attitudes toward HIV diagnoses (Waxman, 2018), and BRCA tests increased by 80% after Angelina Jolie announced her preventative double mastectomy (Park, 2013). Media personalities who are known to be subject-matter experts on vaccines or COVID-19 might provide a stronger relationship between the variables compared to other media personalities such as news anchors and politicians. Since PSR was found to have a relationship with provaccine behavior, future studies could examine the relationship between PSR and other types of vaccines or new medications. Pfizer recently announced an antiviral pill for COVID-19 which is supposed to cut hospitalization and death rates by nearly 90% (Perrone, 2021). This new announcement provides a great opportunity for researchers to examine if PSR might play a role in individuals' willingness to take the new experimental pill.

Other factors that were not considered or analyzed could also play a role in the relationship between PSR and vaccine behavior. Since age has been found to be associated with PSR (Rihl & Wegener, 2019), future studies could examine the relationship between these two in a COVID-19 context. Also, religious preference has been found in recent studies focused on the COVID-19 pandemic to influence vaccination intention or behavior (Perry et al., 2020). Political preference has also been found to influence COVID-19 preventative measures, including vaccine intent (Perry et al., 2020; Whitehead & Perry, 2020). For example, the political right has been found to engage in weaker mitigation behaviors during the COVID-19 pandemic, while the political left has been found to promote and comply with COVID-19 preventive measures such as social distancing, mask wearing, and working from home (Fridman et al., 2021; Igielnik,

2020). However, Arkansas is comprised of primarily Republicans (Pew Research Center, 2014), and a majority of respondents indicated that they complied with COVID-19 mitigation behaviors. This does not align with the recent past findings that Republicans are vaccine resistant. Political and religious affiliation demographics in the state of Arkansas can be found in Figures 5.1 and 5.2.

Figure 5.1

Party Affiliation Among Adults in Arkansas



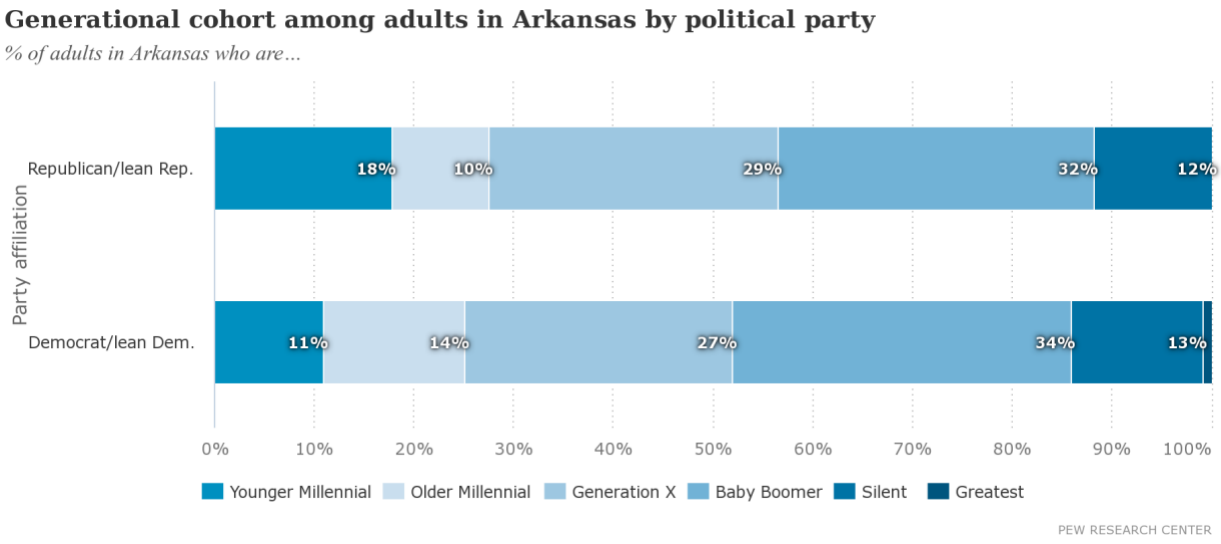
Note. From "The Why's and How's of Generations Research" by Pew Research Center, September 3, , 2015.

Race has been found to be one of the most consistent sociodemographic predictors of vaccine behavior (Whitehead & Perry, 2020). A recent study found that first strongest predictor of general "anti-vaxx" attitudes is identifying as Black, while the second is identifying as a Christian (Whitehead & Perry, 2020). Past studies consistently demonstrate that Black populations are less likely to adopt provaccine behavior (Constantine & Jerman, 2007; Galbraith

et al., 2016; Webb et al., 2018). While race demographic information was collected in the survey instrument, it was not examined. Education is another factor found to influence health attitudes and behavior (Seo & Matsaganis, 2013). One last potential influencing factor that should be considered is that medical professionals, peers, and family have been found to influence preventative measures for COVID-19 (Niu et al., 2021). Trust in medical professionals has been found to increase with the rise of misinformation and disinformation during COVID-19 (Niu et al., 2021). There are multiple lenses through which one can examine vaccine behavior during the COVID-19 pandemic in order to better understand individuals' decision-making process. Motivation behind vaccine intention is still elusive, which provides opportunities for researchers to further examine the relationship between vaccine behavior and potential influential factors.

Figure 5.2

Generational Cohort Among Adults in Arkansas by Political Party



Note. From "The Why's and How's of Generations Research" by Pew Research Center, September 3, , 2015.

Media Dependency and Media Effects

The findings did not support H7, which states that the goal of understanding will significantly predict cognitive media effects. While not many studies specifically examine how the goal of understanding influenced cognitive media effects during disasters or pandemics, some have examined the *media dependency* goals during disasters or pandemics. Lyu (2012) found that the goal of understanding played a significant role in individuals' media dependency needs during a public health crisis. However, this study was conducted in a classroom, which can limit generalizability due to the controlled environment. Sheldon et al. (2021) recently found that the goal of understanding was the second most important media dependency goal during the COVID-19 pandemic. However, the study did not examine cognitive media effects related to the media dependency goal. More research needs to be conducted on the role of the media dependency goal of understanding and its relationship with cognitive media effects. Understanding if and how the goal of understanding influences cognitive media effects can be useful for crafting and disseminating facts about COVID-19 and other health-related facts. It could also be useful when crafting messages to combat rumors during large-scale disasters. More research is needed to better understand if a relationship exists.

The findings supported H8 which states that the goal of orientation will significantly predict behavioral media effects. Lowrey (2004) found that media dependency did predict behavioral change after 9/11 but did not examine specific media dependency goals. Lowrey (2004) also examined if age, education, income, political beliefs, and perceived threat predicted behavioral and attitude changes after 9/11 and found significant results. These factors could also be examined in the context of COVID-19. Other studies have found a relationship between media dependency and behavior (Ball-Rokeach et al, 1984; Skumanich & Kintsfather, 1998).

However, most of these have not examined media dependency during a crisis or disaster. More research needs to be conducted in order to fully understand how media dependency influences behavior during disasters and public health emergencies.

While there was not a statistically significant result for H7, there was a statistically significant result for H8. The data was found to be relatively normal until respondents reached the media effects portion of the survey. A majority of respondents reported high COVID-19 knowledge when asked about cognitive media effects in the survey, as demonstrated in Figure 5.3. Most respondents also scored high (strongly agree, somewhat agree) on affective media effects related to COVID-19. A bar graph comparing the summed answers to all affective media effects can be found in Figure 5.4. A large portion of respondents also reported complying with COVID-19 preventive measures during the pandemic. These proportions can be found in Figure 5.5. As the figures demonstrate, a majority of respondents selected "strongly agree" for all three summarized media effects, which is why the data was skewed during data analysis.

Figure 5.3

COVID-19 Cognitive Media Effects

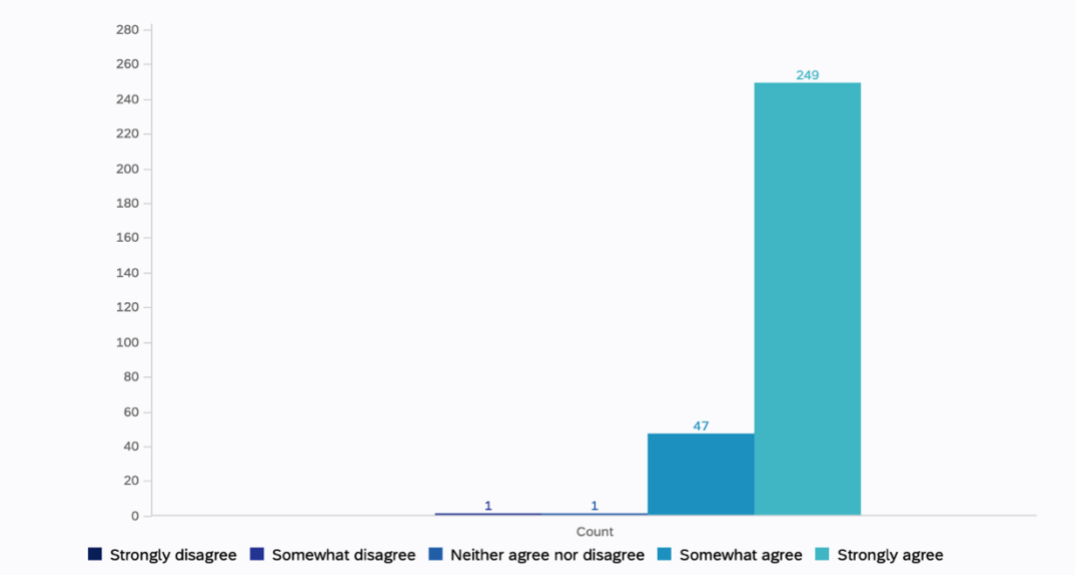


Figure 5.4

COVID-19 Affective Media Effects Summary

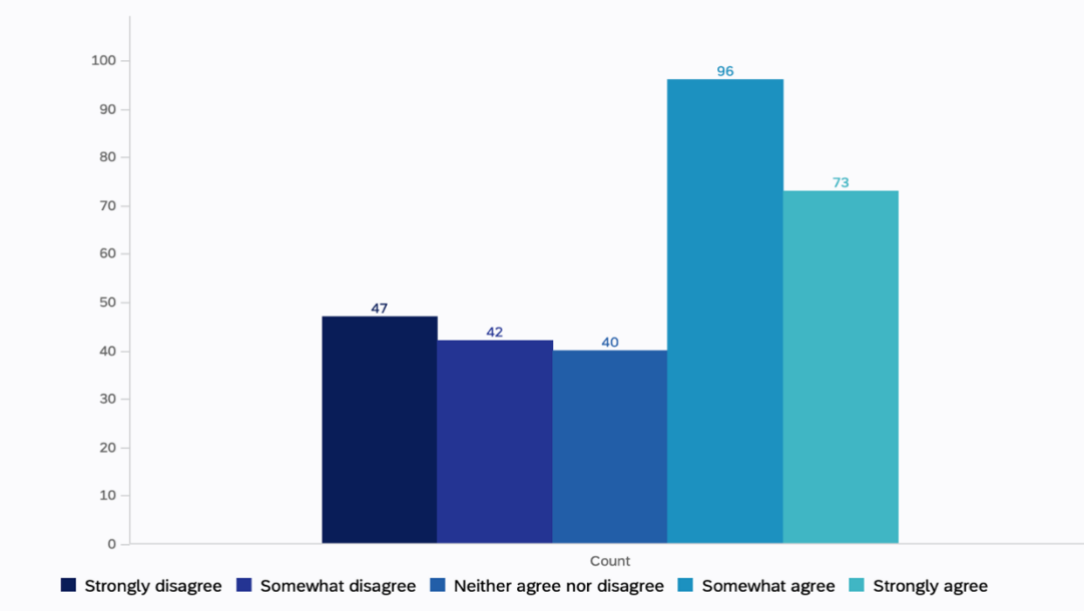
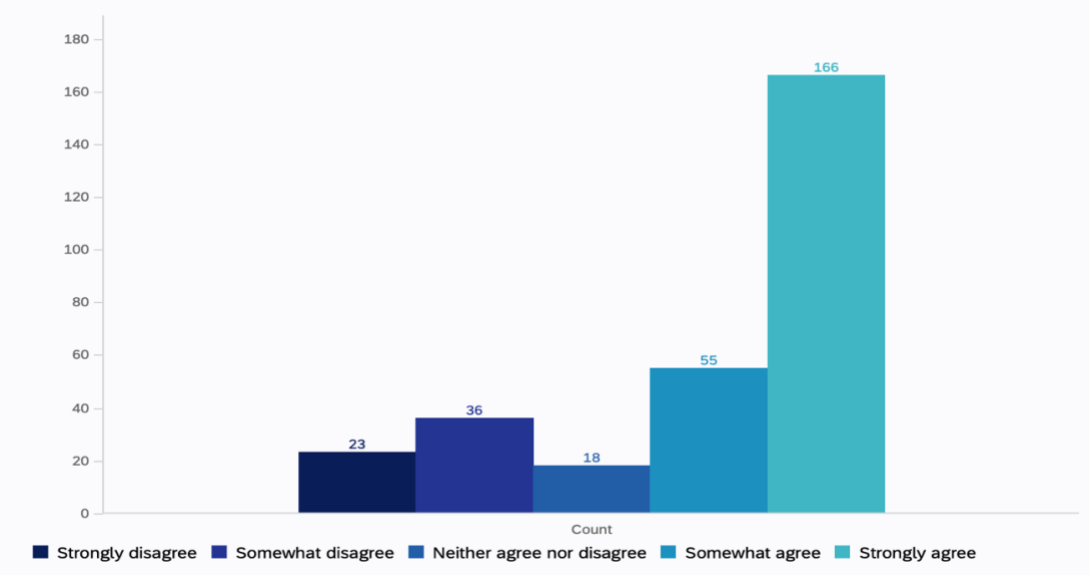


Figure 5.5

COVID-19 Behavioral Media Effects



There are several potential factors that influenced individuals to rate themselves so high when responding to the media effects items. First, the topic of COVID-19 is a sensitive topic, and many are hesitant to discuss it outside of close family members or friends. This could lead to behaviors that are recommended (e.g., face masks, social distancing) regardless of compliance or noncompliance. Social desirability bias has been a challenge to survey research long before COVID-19 because individuals often like to provide socially desirable answers. Other studies that have used surveys to collect data on COVID-19 behavior have received significantly high reports of compliance. Czeisler et al. (2020) had 77.3% of their respondents report self-isolating, 79.5% report social distancing, 74.1% report always or often wearing a face mask, and 85% report avoiding large gatherings. The high-compliance behavior aligns with the current study, which suggests that the current study is not alone in dealing with this challenge. Ways to overcome this biased reporting is discussed further in the Limitations section.

Respondents' media dependency goals also played a role in these results. The media has constantly covered COVID-19, peers and family have discussed it in length, and businesses and places of work have disseminated a large amount of information about the virus. This could indicate that COVID-19 knowledge is more than likely very high right now. Perhaps respondents do not use media with a goal of understanding since COVID-19 has been covered in-depth throughout the pandemic. There are other possible explanations for the results regarding high compliance with COVID-19 protective actions in this study. A recent study about COVID-19 attitudes and behaviors found that that medical students had significant knowledge about the virus (Salem et al., 2021). With knowledge high about COVID-19, perhaps individuals have taken preventative measures. Past studies have found that increased knowledge about threats increases protective actions and self-efficacy (Bandura, 2001; Melki et al., 2020). Zhang et al.

(2015) found that heightened news exposure also influences compliance with preventative measures. Since COVID-19 has constantly been covered in the news, this could be a factor in increased knowledge and preventative behaviors during COVID-19, or at least increased perceived knowledge. The potential increase of COVID-19 knowledge due to constant media coverage and news exposure could potentially explain why protective actions were reported to be complied with at such high rates. The majority of the United States also enforced COVID-19 preventative measures, which could explain the high reported compliance. The CDC imposed countrywide quarantine, imposed travel bans, and mandated face masks along with closing schools (Parmet & Sinha, 2020). Businesses were forced to close or greatly limit operations with strict COVID-9 preventative measures for their customers or face fines, loss of licenses, or citations (Gostin & Wiley, 2020). These severe measures could also play a role in the report of high compliance among respondents.

Future studies could focus on media dependency's influence on media effects during COVID-19 or other disaster events to see if a relationship can be found. A recent study that focused on media dependency's influence on behavior during the COVID-19 pandemic in China found a significant correlation between media dependency and self-efficacy (Gong et al., 2021). It was also found that the self-efficacy mediates the effects of media dependency on prosocial behavior (Gong et al., 2021). Another study examined the media dependency goals among Americans, Croatians, and Thais, finding that media dependency goals varied among all three countries (Sheldon et al., 2021). Americans and Croatians' main media dependency goal fell under the goal of orientation, but the main purpose was to connect with other people, while Thai respondents' main goal was the goal of play (Sheldon et al., 2021). These findings challenge Lowrey's (2004) findings that the goals of understanding and orientation are more prominent

than the goal of play during crises. These findings prove that a relationship does exist between media dependency and media effects within the context of COVID-19, which establishes a need for more research on the topic.

Media Dependency and Parasocial Relationship

The relationship between media dependency and parasocial relationship (PSR) was examined in this study and found to have a relationship. While the relationship was significant, the correlation wasn't that strong (r_s (292) = .242, p < .01). Since the pandemic is still relatively new, the relationship in that capacity could not be as strong compared to relationships examined in past studies. Other studies have examined PSR between viewers and media personalities where the one-sided relationship had more time to develop. Other studies also focused on how PSR influences shopping and voting behavior, which could be viewed as being more superficial compared to personal decisions about personal health. Future studies could examine the relationship between specific media personalities and media dependency. Examining the relationship in different hazardous events could also provide useful information to professionals and researchers. Different hazards may produce different results as individuals' risk perception differs from hazard to hazard (Plough & Krimsky, 1987). This has been proven throughout the pandemic with the varied risk perceptions among individuals. With multiple variants of COVID-19 emerging, it seems the current pandemic is not quite over. There is still time for researchers to examine the relationship between these variables in order to improve knowledge on the influence of mass media and their effects.

Limitations

This study had several limitations that could have influenced the results. First, the sampling method can be considered a limitation. Since a nonprobability sample was used, this limited the study's ability to make generalizations and inferences (Mitchell & Jolley, 2009). While statistical tests were used to examine the data, claims of causal relationships should be viewed with caution due to the sampling method as true inference cannot be made. However, there is an argument among researchers that nonprobability samples are necessary due to funding limitations, nonresponsive bias, and time (Baker et al., 2013; Borie-Holtz & Koning, 2021). The use of cross-sectional survey data also suggests that causal relationships between variables is limited. Future studies could use probability samples and longitudinal studies to collect more robust data in the future.

The characteristics of the sample also provided some limitations. While the generational cohorts Baby Boomers, Generation X, and Millennials all had comparable group sizes, the Generation Z group was quite smaller. However, this could be due to several factors. First, the survey was disseminated during the summer. Generation Z is currently of college age, and many do not check their emails during the summer. Also, younger generations have been found to feel that media is unfair and uninteresting (Newman et al., 2019), which suggests they might not pay attention to COVID-19 news or the survey instrument itself. Other studies have found that Generation Z are often disengaged from political participation (Loveland, 2017), which could also explain the disinterest in participating in the survey instrument since COVID-19 has been greatly politicized. Future studies could team up with higher education institutions to survey Generation Z during the school year to collect more data on the generational cohort. The University of Boston created a campaign that recruited student ambassadors to encourage their

student peers to adopt COVID-19 mitigation measures, and it was found to be successful (Dempsey et al., 2020). Perhaps recruiting student ambassadors to recruit their peers to take future surveys would also work in collecting data on the generational cohort.

The racial demographics of the sample were not quite representative of the racial demographics in the state of Arkansas. Race has been found to be a significant predictor of vaccine hesitancy (Khubchandani et al., 2021; Whitehead & Perry, 2020), which could explain the hesitancy to participate in the survey for this study. Only 12.7% of the Black population in Arkansas have been vaccinated, while 1.8% of the Asian population in Arkansas have received the vaccine (Arkansas Department of Health, n.d.). Less than 1% of Pacific Islander/Hawaiians and American Indian/Alaskan have been vaccinated in Arkansas. These low vaccination rates could potentially explain the potential unwillingness to take the survey since it did focus on COVID-19 behaviors.

The data also seems to contain biased or skewed results due to social desirability bias. The data suggests that respondents' attitudes changed midway through the survey when they were asked about their COVID-19 media effects (cognitive, affective, behavioral). There are several reasons why participants' attitudes could change mid-survey. The topic of COVID-19 preventative behaviors (social distancing, face masks, etc.) and the COVID-19 vaccine are currently sensitive topics due to the current political climate. President Joe Biden recently announced a vaccine mandate for businesses with 100 or more employees, which has created controversy among the American public (Schaper, 2021). Some corporations such as Disney, Tyson Foods, Walmart, and health facilities have announced mandatory vaccination status for their employees, which has caused some employees to resign (Diaz, 2021; Nagele-Piazza, 2021). Arkansas is home to Tyson Foods and Walmart, which could have influenced the current study's

respondents' answers. Vaccine hesitancy stems from several causes, including the lack of long-term data (Dzieciolowska et al., 2021; Schwartz, 2020), education (Freeman et al., 2020), income (Freeman et al., 2020), and distrust (Schwartz, 2020; Trogen et al., 2020). The politicization of the COVID-19 vaccine has created what has been termed "a culture war" throughout the country. Participants may have been suspicious of any ulterior motives in the data collection and therefore unwilling to share their true attitudes, beliefs, and behaviors.

The public health restrictions during COVID-19 have created social norms for protective actions and mitigation behaviors such as wearing face masks, social distancing, avoiding large gatherings, and more recently, the COVID-19 vaccine (Jernigan, 2020; World Health Organization, 2020; Centers for Disease Control, 2021). Compliance and noncompliance with COVID-19 preventative measures have become part of the current culture war in America, referenced above. The resulting social desirability bias potential in survey research can affect the quality of data, which is problematic for researchers, public health officials, and other authorities when examining data collected on COVID-19 attitudes, perceptions, and behaviors. Daoust et al. (2020) recently created "face-saving" strategies in survey research specifically focused on COVID-19 in order to combat social desirability bias. A short preamble was provided at the beginning of the survey along with "guilt-free" answer choices in the survey items (e.g., "only when necessary") examining behaviors during COVID-19. Daoust et al. (2020) found that respondents were more likely to report noncompliant behaviors with these "face-saving" strategies. Another study followed up on the initial study and examined the "guilt-free" strategies across 12 countries; it found similar results (Daoust et al., 2021). Future studies could use these strategies to reduce social desirability bias when examining COVID-19 behaviors. Future studies could also reword the items regarding COVID-19 knowledge to ask respondents to respond with

correct answers about COVID-19 effects instead of just personally rating their knowledge with general statements. This could more accurately record respondents' COVID-19 knowledge.

Recommendations for Future Research

The findings from the current study have provided multiple opportunities for future research. First, it is recommended that the survey instrument be reworded regarding the media effects items to potentially gather more honest responses from participants. With the stigma and sensitivity around the COVID-19 virus and vaccine, wording of questions that focus on individual's behavior, attitudes, and knowledge should be carefully considered to encourage honest answers. With the mixed results regarding the relationship between media dependency and media effects, future studies could further examine the two variables in-depth. Since media dependency theory (MDT) is grounded in the concept that dependency will increase during times of ambiguity, a relationship of some kind should exist between media dependency and media effects.

The findings for Parasocial relationship (PSR) were also mixed which provides opportunities for further examination in the future. PSR has been found in past studies to influence behavior outside the viewing process. Perhaps future studies could focus on individual media personalities, which could potentially find a relationship between PSR and media effects. It is also recommended that future studies focus on either one or specific media personalities instead of allowing respondents to enter their own favorite media personality. Allowing respondents to choose their own media personality can cause ambiguity, which could skew their response. Providing specific media personalities could decrease ambiguity and allow respondents to better focus on the survey items. Future studies could also select media personalities who relate to the survey topic to gather better data on the relationship between PSR and COVID-19

media effects. Past studies focusing on PSR and its influence on behavior focused on specific media personalities related to the subject of the study. A study that focused on college football fans' PSR with NCAA college athletes found that PSR can influence cognitive, affective, and behavioral effects (Yuksel & Labrecque, 2016). Another study surveyed individuals who had read the Harry Potter series and found high PSR rates among respondents and the main protagonist of the book series, Harry Potter (Schmid & Klimmt, 2011). Perhaps future studies that focus on COVID-19 could select media personalities or subject-matter experts tied specifically to COVID-19 to examine PSR and media effects. However, past studies that have found a relationship between PSR and media effects have allowed participants to select their own media personality in the survey, so perhaps the ability to select the media personality does not play a role in the lack of a relationship between PSR and media effects.

The findings of preferred media platforms among the generational cohorts could be further examined by focusing on a specific media platform and the specific types of channels or platforms within the media. For example, this study focused on social media as a whole. Future studies could examine if there are preferred social media platforms (e.g., Instagram, Tik Tok) among Millennials and Generation Z since those generational cohorts prefer using social media to seek information on COVID-19. This could provide findings on which specific social media platforms are more popular among the generational cohorts. Preferred television channels (ABC, FOX, CNN) could also be examined among Baby Boomers and Generation X since those generational cohorts prefer watching television to seek information about COVID-19. Those findings could also be useful for narrowing down specific channels to disseminate messages on. Focusing on specific media platforms and their subchannels could also provide a broader

understanding of media usage patterns and behavior, which could be insightful regarding how decisions are made between the generational cohorts.

Factors that could potentially play a role in the relationship between media dependency and media effects should also be examined in future studies, such as education, political preferences, race, and risk perception. Recent and past studies have examined the role these factors play in media dependency after or during a disaster (Lowrey, 2004; Sheldon et al., 2021; Zhao et al., 2020). Examining these factors could provide more knowledge and insight into individuals' knowledge, attitudes, and behaviors during significant events. Researchers could also examine specific sources of information. This study collected data on multiple media platforms, but specifically focusing on one platform could provide more insight into the usage of that platform. Future studies could also look into the role that friends and family played in providing information during COVID-19. Personal networks have been found to be very influential in decision-making during disasters (Arlikatti et al., 2007; Lindell et al., 2005). Examining how personal networks have played a role in COVID-19 behavior could be useful for risk communicators because it could help them better understand the decision-making process during disasters and public health emergencies.

Recommendations for Practice

There are several significant findings that could benefit those responsible for disseminating messages on risk and crises to the public, such as emergency managers, public health officials, elected officials, and other subject-matter experts. The finding that Baby Boomers and Generation X both prefer television as their primary media platform suggests that messages targeted toward those age groups should primarily be disseminated on television. However, since Generation X was also found to prefer social media and digital articles, messages

targeted toward that specific age group could also be disseminated on those media platform. Millennials and Generation Z were both found to prefer social media when seeking information for COVID-19. Those in the field could use these findings to target both age groups on social media platforms. There are examples of this as the White House has teamed up with celebrities to talk about the benefits of the COVID-19 vaccine and posted short video chats on Instagram and other social media platforms (POTUS, 2021). The more ability that public health experts and risk communicators have to tailor messages for specific groups and reach them on their preferred media platforms, the better chances they have to significantly improve risk perception and protective action behavior.

Since media dependency was found to be a significant predictor of PSR, risk communicators and authorities could work with media personalities on specific media platforms to tailor messages to certain groups. For example, since Baby Boomers prefer television, theoretically, they will have a higher chance to develop PSR with a media personality on television (e.g., news anchor, elected official, local meteorologist). Partnering with media personalities who are primarily on television could potentially reach more of the Baby Boomer population. Using known media personalities to connect with individuals could potentially be helpful in disseminating messages during the COVID-19 pandemic or future disasters.

Lastly, it should be noted that the interdisciplinary nature of this topic proves that the complex challenges presented in the real-world must be solved with an interdisciplinary approach in practice. It is recommended that professionals from multiple disciplines work together to solve these complex issues. Challenges have become more complex due to interconnectedness on political, economic and social levels (Menken & Keestra, 2016). The COVID-19 pandemic proved that the interconnected world creates problems when one system

experiences a shock. One discipline alone cannot solve the issues surrounding COVID-19. While each discipline brings a unique and necessary approach to a problem, one perspective alone does not effectively tackle a complex issue. This is why it is important for interdisciplinary collaboration to take place in response to COVID-19. This approach could potentially provide long-term solutions to create more resilient communities and improve response to future incidents.

Conclusion

This study examined mass media's influence on knowledge, attitudes, and behaviors during the COVID-19 pandemic. The pandemic has proved that mass media plays a significant role during disasters, public health emergencies and other events of significance. The current climate surrounding the pandemic is sensitive due to the culture wars and politicization of the pandemic. Mass media has facilitated this polarization along with elected officials, which has resulted in conflicting messages (Zhao et al., 2020). This has led to inconsistent mitigation behavior and beliefs during the COVID-19 pandemic (Romer & Jamieson, 2020). Mass media's role in influencing individuals' attitudes and behaviors can be insightful for several disciplines and professions. It is critical for professionals involved in disseminating messages to the public during crises to understand the relationship between mass media and the public.

This study has many implications for communication during COVID-19 and future disasters and public health events as well. With new types of media emerging and with the changing media usage patterns, it is vital for researchers to investigate the evolving nature of media behavior. The inconsistent and constantly changing messaging of the federal government and the CDC has created a lack of trust (Nagler et al., 2020; Zhao et al., 2020). Mass media has also lost trust with the public during the COVID-19 pandemic, which has influenced where individuals go

to for information on COVID-19 (Pennycook et al., 2021; Perry et al., 2020). Understanding media preferences between generational cohorts provides more information on media patterns for professionals. It also provides an opportunity for future studies to examine the topic further. Knowing if and how media dependency plays a role in individuals' behavior and decisions is also useful for those responsible for communicating about COVID-19 and during other large-scale disasters.

There has been little research examining how individuals depend on media during pandemics and disasters. If more research can be conducted on the topic, future messages and targeted campaigns can be better crafted and strategically disseminated to actually make a difference. There is no easy solution to the current challenges of misinformation, disinformation, and lack of trust. However, as the academic community gathers more knowledge on relevant topics, possible solutions and strategies can be found to combat these challenges. Future studies could take an interdisciplinary approach as the fields of communication, marketing, emergency management, public health, and political science could all contribute to these topics. This study was grounded in emergency management, mass communications, and marketing theory and research. The interdisciplinary nature of disasters provides ample opportunities for researchers to examine issues through multiple disciplinary lenses. This could provide unique findings, which could lead to best practices in future world events where the media and public health or emergency management play a significant role. The findings of the current study could be useful for multiple disciplines in future disasters in the context of risk and crisis communication.

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Appendix A: Study Recruitment Email

Greetings–

My name is Amy Hyman, and I am a doctoral student at Jacksonville State University. I am conducting a study titled "Examining Media Dependency and Parasocial Relationship During COVID-19" to complete my doctoral process. You are invited to participate in the study that will determine the media's role during the COVID-19 pandemic. The goal of the study is to examine if and how the media influenced Arkansas residents' knowledge, attitudes, and behaviors during the COVID-19 pandemic.

You have been contacted to give insight on your thoughts, attitudes, and behaviors during COVID-19. The survey will take approximately 8–10 minutes to complete. Your replies will be anonymous, so do not type your name anywhere on the form. If you wish to voluntarily enter to win one out of four $25 Amazon gift cards, enter in your email address at the very end of the survey. This is not required and is based solely on your voluntary participation. There are no known risks involved with this study. Participation is completely voluntary, and there will be no penalty or loss of benefits if you choose not to participate in this research study or to withdraw. If you choose not to participate, you can leave the survey site. You may choose not to answer any question by simply leaving it blank. Once you complete the survey, you can delete your browsing history for added security. Completing the online survey indicates your consent for use of the answers that you supply. If you have any questions about the study, you may contact Amy Hyman at ahyman@stu.jsu.edu.

To complete the survey, follow this link: CLICK HERE

Or, copy and paste the URL below into your Internet browser:
INSERT LINK

Thank you for your assistance.

Sincerely,

Amy Hyman, MS

Appendix B: Consent Statement

Consent Statement:
The following information is provided to inform you of the research project titled "Examining Media Dependency and Parasocial Relationship During COVID-19" that will be conducted by Amy Hyman.

Purpose and Description of the study: This study is being conducted by Amy Hyman, a doctoral candidate of the Department of Emergency Management and Public Administration at Jacksonville State University, in order to better understand the role of the media and media personalities during the COVID-19 pandemic. This study involves research. Your responses to the survey questions are confidential and only available to Amy Hyman and her dissertation committee. Participants must be 18 years of age or older and must be a resident of the state of Arkansas. The expected duration of this survey is 9 minutes.

Confidentiality and limits to these assurances: No personal identifiable information will be collected except if the participant wishes to submit their email address to enter to win one of four $25 Amazon gift cards. Once the four winners are identified, email data will be deleted, and all information collected will be protected by passwords.

Procedures to be followed and approximate duration: Participants in the research will participate in an online survey that will focus on the role of the media and media personalities during the COVID-19 pandemic. The survey will last approximately 8 minutes, and your responses will be combined with other participants' responses.

Risks: This research involves no more than minimal risk. The probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. For example, one might feel discomfort or unpleasant memories when reading the questions of this survey.

Anticipated benefits: Potential benefits to you from participating in this study are contributing to the body of knowledge on media effects during times of disaster.

Contact information: If you have any questions about this study, you can contact the person below:

Principal Investigator
Amy Hyman
Jacksonville State University
ahyman@stu.jsu.edu

Your rights as a volunteer: By participating in this study, you do not waive any rights that you have regarding access to and disclosure of your records. Your participation in this study is completely voluntary. If you choose to participate, your responses will be confidential. You are free to withdraw at any time without penalty. If the results of this study were to be written for publication, no identifying information will be used. For information regarding your rights as a research participant, please contact the Director of Research Compliance at (256) 782-5540 or IRB@jsu.edu.

I have read the description of the research project/study, and I understand the procedure described in the above paragraphs. I am 18 years of age or older, am a resident in the state of Arkansas, and I freely and voluntarily choose to participate in this study.

Appendix C: Online Questionnaire

Survey Introduction Note
This survey's purpose is to examine the role of the media during COVID-19. When answering the questions, please answer them as to your thoughts, feelings, and behavior during the height of the COVID-19 pandemic.

- Ok

1. In which year range were you born?
    a. 1928–1945
    b. 1946–1964
    c. 1965–1980
    d. 1981–1996
    e. 1997–2012

2. With which gender do you identify?
    a. Female
    b. Male
    c. Other

3. Please specify your ethnicity:
    a. White
    b. Hispanic/Latino
    c. Black or African American
    d. Native American or American Indian
    e. Asian/Pacific Islander
    f. Other
    Please specify: _____

4. In which county in Arkansas do you reside? (drop-down-menu)

    Arkansas
    Ashley
    Baxter
    Benton
    Boone
    Bradley
    Calhoun
    Carroll
    Chicot
    Clark

Clay
Cleburne
Cleveland
Columbia
Conway
Craighead
Crawford
Crittenden
Cross
Dallas
Desha
Drew
Faulkner
Franklin
Fulton
Garland
Grant
Greene
Hempstead
Hot Spring
Howard
Independence
Izard
Jackson
Jefferson
Johnson
Lafayette
Lawrence
Lee
Lincoln
Little River
Logan
Lonoke
Madison
Marion
Miller
Mississippi
Monroe
Montgomery
Nevada
Newton
Ouachita
Perry
Phillips
Pike
Poinsett

Polk
Pope
Prairie
Pulaski
Randolph
Saline
Scott
Searcy
Sebastian
Sevier
Sharp
St. Francis
Stone
Union
Van Buren
Washington
White
Woodruff
Yell

5. During more normal times, on average, approximately how much time PER DAY do you spend using the following media?

	Less than 10 minutes per day	10–0 minutes per day	31–60 minutes per day	1–2 hours per day	2–3 hours per day	More than 3 hours per day
Newspaper/digital articles						
Radio/podcast						
Social media						
TV						
Other Please specify: _____						

6. During the height of COVID-19, on average, approximately how much time PER DAY do you spend using the following media?

	Less than 10 minutes per day	10–30 minutes per day	31–60 minutes per day	1–2 hours per day	2–3 hours per day	More than 3 hours per day
Newspaper/digital articles						
Radio/podcast						
Social media						
TV						
Other Please specify: _____						

7. Which media source do you use the most often to stay up to date with news, current events, and trends?
    a. TV
    b. Social media
    c. Radio/podcast
    d. Newspaper/digital articles
    e. Other
       Please specify: _____

8. The following statements have you think about how media influences social and personal understanding. How often did you use your most used media source for fulfilling each of the following social and personal understanding goals during the height of COVID-19?

	Extremely often	Very often	Moderately often	Sometimes	Never
To know what is going on in the world					
To know the major current issues in my country					
To observe how others cope with problems or situations like mine					
To gain insight into why I do some of the things I do					

9. The following statements have you think about how media influences attitude and expression. How useful is your most often used media source for fulfilling each of the following attitude/expression goals?

	Extremely often	Very often	Moderately often	Sometimes	Never
To know how to interact with other people					
To know how to react to others					
To compare/share my thoughts or feelings with others					

10. The following statements have you think about how media influences behavior and decisions. How useful is your most often used media source for fulfilling each of the following behavioral goals?

	Extremely often	Very often	Moderately often	Sometimes	Never
To decide where to get services (food, health, house maintenance).					
To get information on purchasing goods.					
To discover better ways to communicate with others					
To get ideas about how to approach others in important or difficult situations					

11. The following statements have you think about how media influences leisure and entertainment. How useful is your most often used media source for fulfilling each of the following entertainment goals?

	Extremely often	Very often	Moderately often	Sometimes	Never
To unwind after a hard day or week					
To relax when you are by yourself					
To have fun with friends or family					
To be a part of events you enjoy without having to be there					

12. The next group of statements focus on COVID-19 knowledge. Please indicate how much you agree or disagree with them in the context of COVID-19.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am aware of COVID-19 infection symptoms.					
I know what to do if I come in contact with a confirmed COVID-19 case.					
I know which groups are at high risk for serious disease from COVID-19.					
I am aware of the factors affecting COVID-19 transmission.					

13. The next group of statements focus on attitudes and emotions during COVID-19. Please indicate how much you agree or disagree with them in the context of COVID-19.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I felt fear during the COVID-19 pandemic.					
Elected Officials have responded to COVID-19 in an appropriate manner.					
I think wearing a face mask is effective in preventing COVID-19.					
I think the COVID-19 vaccine is safe.					
I think wearing a face mask does not prevent COVID-19.					
I felt calm during the COVID-19 pandemic.					

14. The next group of statements focus on behaviors and decisions during COVID-19. Please indicate how much you agree or disagree with them in the context of COVID-19.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I did not attend events where there are large gatherings.					
I wore a face mask when in public.					
I maintained social distancing during COVID-19.					
I attended events where there were large gatherings.					
I did not wear a face mask when in public.					
I did not maintain social distancing during COVID-19.					
I intend on getting the COVID-19 vaccine or already have.					

15. In the space below, type the name of your favorite media personality, elected official, or subject-matter expert that you most often go to for information on news, current events, or topics that interest you.

16. For the next group of questions, please indicate how much you agree or disagree with them based on the individual you identified in the previous question.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
This person makes me feel comfortable, as if I am with a friend.					
This person reminds me of myself.					
I seem to have the same beliefs or attitudes as this person.					
I would like to meet this person in person.					
I look forward to watching this person or interacting with this person on which media they are on.					
I like to compare my ideas with this person.					
This person has qualities similar to those of my friends.					
I like the way this person handles problems that come up.					
This person provides correct information about COVID-19 and other news information.					
I have sought out COVID-19-					

related information from this person.					

17. The next group of statements focus on trust with media personalities. Please indicate how much you agree or disagree with the following statements based on the individual you identified as your favorite media personality.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I believe this person is very capable of performing their job.					
If this person were to get the COVID-19 vaccine or recommend getting the COVID-19 vaccine, I would consider getting the vaccine.					
I feel very confident about this person's knowledge.					
This person's decisions are not too influenced by any organization or belief.					
I can rely on information provided by this person.					
I can expect this person to always provide truthful information.					
I trust the recommendations this person makes.					
If this person were to refuse					

the COVID-19 vaccine or recommend refusing the vaccine, I would refuse the vaccine.					

18. Thank you for taking time to complete the survey. If you wish to enter one of four $25 Amazon gift cards, please enter your email address below. All email data will be deleted once the four winners are randomly selected and notified.

    _____

Survey End Note

Thank you for taking time to complete this survey. Your participation is appreciated and contributes to the body of research concerning disasters and public health emergencies. If you have any questions, you can reach Amy Hyman at ahyman@stu.jsu.edu.

Your survey response is complete. You may exit the browser.