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## Mass Shooting Perceptions, Public Mental Illness Stigma, and Social Media Use: A Regression Analysis

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# Walden University

College of Psychology and Community Services

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Kayla Cross

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Walden University  
2025

Abstract

Mass Shooting Perceptions, Public Mental Illness Stigma, and Social Media Use: A

Regression Analysis

by

Kayla Cross

MA, Marywood University, 2016

BS, King's College, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Forensic Psychology

Walden University

May 2025

## Abstract

Mental illness is frequently associated with mass shootings in news media, which can result in negative stigma among individuals diagnosed with mental illness. While mental illness and mass shootings have been explored previously, social media perceptions have not yet been examined in relation to mental illness stigma and mass shootings. The purpose of this study was to examine public mental illness stigma, mass shootings, and perceptions through social media in a correlational study subjected to regression analysis. The theoretical framework for the study was based on Tajfel and Turner et al.'s theory of social identity and intergroup behaviors. The analysis in the study was a regression analysis with a correlational design. The study examined if social media, public mental illness stigma, and demographics predict perceptions of mass shootings as well as whether specific types of social media are also predictors. The results of this study showed a statistically significant relationship between social media use among participants, perceptions of mass shootings (respondents feeling mad in response to news of mass shootings), and perceptions of mental illness stigma (respondents' response to the belief that mentally ill people tend to be violent). Of the four research questions, only one was found to be significant and able to reject the null hypothesis. The other research questions were still examined for relevant information to the study. This study has implications for positive social change through understanding the relationships between social media perceptions, mass shootings, and public mental illness stigma. The study can also be beneficial in considering aid for development in minimizing mental illness stigma.

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## Chapter 1: Introduction to the Study

News stories within the United States regarding mass shootings frequently feature speculation of mental illness having a role, despite data demonstrating that most individuals with severe mental illness diagnoses are not violent (Knoll & Annas, 2016). News stories frequently depicted mass violence and featured the offender's mental illness in question, which influence public perceptions of mental illness and associations of dangerousness with mental illness diagnoses (Chan & Yanos, 2018; Pescosolido et al., 2019). Mental illness has frequently been associated with violence through news stories, which could influence several types of stigma that individuals with mental illness may face, such as self-stigma (e.g., internalizing toward self), public stigma (e.g., through society or culture), and structural stigma (e.g., through laws and policies), particularly when the offender's mental illness status is presumed with the violence (Anestis & Daruwala, 2021; Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016). Stigma is potentially harmful to individuals diagnosed with a mental illness. Stigma can lead to decreases in seeking treatment, targeted policy reforms, public demands for mandated or coerced treatments, negative effects on recoveries, and unsubstantiated beliefs, such as dangerousness or worsening symptoms (Parcesepe & Cabassa, 2012; Pescosolido et al., 2019; Peterson et al., 2021; Varshney et al., 2016).

In addition to news media, social media is a method for the public's consumption and communication of information, including news of mass shootings. However, there has been minimal information regarding social media's influences. This study aimed to examine the factors of public stigma of mental illness and social media use as potential

predictors of mass shooting perceptions relating to these variables to determine what, if any, predictors may be present. The study not only addressed a featured gap in literature among its variables but also was beneficial for better understanding the effects of social media as a potential predictor and whether this predictor could potentially contribute harmfully to social facets, such as mental illness stigma.

This study's potential for positive social change includes further research in this field relating to the identified gap in current literature, while also investigating predictors that social media may have in shaping public opinion over groups of people, such as those identified with mental illness. The following chapter reviews the background and problem statements of this study, the research gap, and the problem statement, as well as its purpose, research questions, and theoretical framework. Additionally, the nature of the study, definition, assumptions, delimitations and scope, limitations, and significance are explored in this chapter.

### **Background**

The literature pertinent to the study was gathered relating to mass shootings and mass shootings' news coverage, stigma relating to mental illness, particularly public mental illness stigma, social identity theory, and social media communication. Some of the research investigated media influences in relation to mental illness and mass shooting effects (Budenz et al., 2019; Hammarlund et al., 2020). According to previous research, media influences have a capacity to reach farther geographic areas through social media than more traditional news media and there is higher engagement and communication outside of said geographic areas relating to mental illness stigma (Budenz et al., 2019).

Further, media negative portrayals can have a harmful public stigma among individuals with mental illness following mass shooting events as well as stigmatizing language present in media regarding the perpetrator's mental status (Hammarlund et al., 2020). News coverage regarding mass shootings affects both those with and without mental health diagnoses; those without a mental illness diagnosis had a higher level of engagement, expression, and support online, while those with a mental illness diagnosis had a higher negative association and less engagement (Hoffner et al., 2017). Further, sharing negative communication on social media relating to mass violence has been shown to further increase negative emotion and shape attitudes (Jones et al., 2016; Jose et al., 2021). Beliefs of firearm ownership affect beliefs of firearm behaviors and mental illness, particularly individuals who owned firearms were more likely to attribute firearm violence to mental illness and endorse inaccurate beliefs (Anestis & Daruwala, 2021).

Many myths regarding mass shootings, media, and public perception have been debunked (Schildkraut & Elsass, 2016). Research on the associations between mass shootings and severe mental illness among schizophrenia, bipolar disorder, and mental illness found minimal contribution among the cases examined between mental illness and mass shootings (Skeem & Mulvey, 2019). Instead, it was found public perceptions and media portrayals were generally stronger than the evidence provided in the cases examined (Skeem & Mulvey, 2019). Other research has noted a lower proportion of violent offenders diagnosed with mental illness, indicating a low concurrence between mental illness and violence (Varshney et al., 2016). Additionally, Peterson et al. (2021) examined the role of psychosis in the contribution of violence in 172 cases. They found

psychosis was not present in 69% of cases of mass shootings, 11% played a minor role, 9% played a moderate role, and 11% played a major role in cases.

Much of the relevant research relating to the variables noted greatly contributed to the topic but there was a gap in demonstrating the extent to which social media may influence or reflect public stigma of mental illness and mass shootings, despite frequent discussions in media regarding associations of both topics. While social media is studied to some extent relating to these topics, there is still a lack of research on the relationship between social media with a more significant focus on traditional media and mass shootings. There has been a rise in the use of social media in relation to communication regarding mass shootings (Schildraut & Elsass, 2016). As there is not a relevant study found for the purposes related to these variables examining the predictors of social media's effects on public stigma of mental illness relating to mass shootings perceptions, this study attempted to address the gap in the literature while bridging on the previous literature relating to these variables. This study was argued necessary due to the relatively new existence of social media, the continued concerns raised in society regarding mass shootings, and the effects of individuals diagnosed with mental illness facing stigma.

### **Problem Statement**

As noted, there was a discrepancy between the perceptions of an association between mass shootings and mental illness that is frequently drawn through the news and statistically recorded levels of violence among individuals with serious mental illness (Knoll & Annas, 2016). The percentage of violence against others perpetrated among those with a serious mental illness diagnosis recorded up to three percent in the United

States (Knoll & Annas, 2016). With news media stories regarding mass shootings, a common presentation or association was made that the shooter may have an untreated or diagnosed mental health disorder that contributed to the mass shooting (McGinty et al., 2013; Peterson et al., 2021; Schildkraut, 2018). The discrepancy between perceptions of mental illness violence rates and mass shootings in media can influence the public views of mental illness and violence, which can then result in harmful stigmatizations in mandates, laws, policies, discussions, and individuals seeking treatment (Jose et al., 2021; Pescosolido et al., 2019; Skeem & Mulvey, 2019).

With the popularity and use of social media, there were approximately 244 million active users in 2018 in the United States; news and communication are available on a global scale, including sharing public opinions on a global scale, including negative correspondence about mass shootings and mental illness stigmas (Budenz et al., 2018; Clement, 2020; Jones et al., 2016). As noted, social media was a relatively new phenomenon, and the online environment has limited research on its influences on public perceptions specifically pertaining to mass shootings and the public stigma of mental illness. Further, it is unclear if there is a difference between social media platforms (e.g., Twitter, Facebook, Reddit, etc.) having differing influences. Even with relevant and current studies predominantly within the last 5 years, there is still a lack of studies for this literature gap not just within the specific discipline of forensic psychology but broadened to the discipline of psychology generally. This research aimed to fill a gap in literature not only pertaining to mass shootings, a frequent societal focus, and public concern but also on mental illness to investigate and reduce stigmatizing views to minimize the

negative effects of stigma.

### **Purpose of the Study**

The purpose of this quantitative study was to examine the predictors of social media on public perceptions of mental illness, and public stigma, regarding perceptions of mass shootings events through an online questionnaire. The questionnaire was distributed online through SurveyMonkey. It was completed by a convenient adult sample of online social media users within the United States to examine perceptions of individuals relating to mental illness, mental illness violence, mass shootings, and social media use as well as gather participant demographics. The variables examined included social media access, news media coverage, mental illness including questions related to stigma, extent of social media use, public perceptions, and mass shooting events. This study aimed to address the gaps in the literature by measuring regressions among the under-research predictors of social media relating to public stigmatizations of mental illness relating to perceptions of mass shootings (Budenz et al., 2018; Jones et al., 2016).

### **Research Questions and Hypotheses**

RQ 1: Is social media use significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

$H_01$ : Social media use is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_a1$ : Social media use is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 2: Is type of social media significantly predicted by perceptions of mass

shootings and mental illness stigma when controlling for other variables?

*H<sub>0</sub>2*: Type of social media is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a</sub>2*: Type of social media is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 3: Age range is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>0</sub>3*: Age range is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a</sub>3*: Age range is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 4: Is gender significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

*H<sub>0</sub>4*: Gender is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a</sub>4*: Gender is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

### **Theoretical Framework for the Study**

The theoretical framework base for this study was Tajfel (1974) and Turner et al.'s (1979) theory of social identity and intergroup behaviors, regarding how social identity, in-group and out-groups, group processes, and self-categorization affect how an individual will act. The theory investigated intergroup favoritism, rewards, self-esteem,

attitudes, practices, and ideals relating to discrimination and self-interest (Bornewasser & Bober, 1987; Tajfel, 1974). This theory was applicable in how social identity theory relates to mental illness with group classifications and differentiations in the individual's mental illness diagnoses as well as social context which is further explored in Chapter 2 of this study (Jackson et al., 2009).

Social identity theory was examined to account for stigma experienced by those with a mental illness diagnosis through in-group stigmatizing and discriminating out-group individuals through mental illness perceptions (Jackson et al., 2009; Tajfel, 1974; Turner et al., 1979). Social identity theory was applied to the hypotheses for examining whether social media influences correlate to public stigmas of mental illness and mass shootings, as well as whether types of social media may have this relationship as well. In using social identity theory relating to social media use, public stigma of mental illness, and associations of mass shootings, the theory was used to account for stigmas of mental illness in association with public responses to perpetrators of mass shootings and beliefs of mental illness violence.

### **Nature of the Study**

The nature of this study was quantitative research with a correlational study designed to measure responses to an online questionnaire with questions about social media use, as well as perceptions of mass shootings and public stigma of mental illness. The study participants remained anonymous. The survey responses were examined in relation to the research problem with analysis of regression data related to survey questions, demographics, and scales included, which are noted in Chapter 3. A

correlational quantitative methodology for this study was used to examine whether there are potential predictors between perceptions of mental illness stigma, mass shooting perceptions, and social media influences possibly present.

This quantitative correlational design with a regression analysis had the potential to provide data related to mass shooting events and public mental illness stigma perceptions that could be shared from social media. The survey, built from a collection of surveys available through Walden University's database and free for use for research purposes, was compiled through SurveyMonkey with adult participants from the United States and analyzed through SPSS through regression analysis and any further necessary analyses, to determine if there are relationships with the variables. The data collected for this study was examined as regression coefficients to examine if there are any relationships in the data without interference which will be further described in Chapter 3 (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). The regressions were examined for any significant relationships between the variables (e.g., social media, mass shootings, and public stigma of mental illness). Much of the study has common terminology; however, the variables of mass shootings, public stigma of mental illness, and social media are defined as key variables of the study.

### **Definitions**

The following words or phrases are defined for this project.

*Mass shootings*: Also sometimes classified as mass violence with a firearm, are defined as at least four individuals shot, excluding the shooter, according to the Gun Violence Archive, as the FBI does not have a formalized definition (Silverstein, 2020).

According to Silverstein (2020), there were 417 mass shootings in 2019 fitting this definition.

*Public stigma of mental illness:* Stigma is defined as an aspect that someone could be ashamed or suffer from having as an attachment, therefore public stigma of mental illness relates to societal shame relating to mental illness, including assumptions not substantiated by the fact (Anestis & Daruwala, 2021; Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016).

*Serious mental illness:* Also known as mental health condition, is defined as severe and persistent symptoms that can affect an individual's thoughts, feelings, behaviors, or moods that can significantly impact day-to-day living, as well as the ability to relate to others; accordingly, there are approximately 1 in 20 U.S. adults that experience serious mental illness yearly (American Psychiatric Association, 2018; National Alliance on Mental Illness, 2021). Disorders identified under this terminology include schizophrenia-spectrum disorders, bipolar disorder, and major depressive disorder and commonly exclude antisocial personality disorder within this definition (American Psychiatric Association, 2018; National Alliance on Mental Illness, 2021).

*Social media:* Also known as social media platforms, are defined as a web-based site that has a primary feature of users interacting for communication and content through participation and networking (Clement, 2020).

### **Assumptions**

While there was evidence supporting that there are associations between news media, mass shootings, mental illness, and violence, this was largely an assumption used

within the study as the basis for grounds for this research (Anestis & Daruwala, 2021; Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016). There was research to support this assumption, but it cannot be definitively established and this assumption is critical to the meaningfulness of this study to review if there is a relationship among these variables relating to social media. Despite this, the assumptions were necessary for the context of the study in both supporting the literature behind the study as well as the basis for why this study is necessary due to the literature gap. Among this, I assumed that the individuals completing the survey have accessed at least one type of social media among their internet experiences either on a computer, tablet, or mobile phone. Additionally, it was assumed there is some level of exposure to mass shootings on social media. It was also assumed that participants would be honest or truthful in their responses, as well as assumptions that the individuals filling out the survey would do so to completion.

There are also some assumptions relating to the statistical measures and analysis, relating to regressions. It was assumed from the study that there would be a statistically significant relationship found from the survey, in which the regression analysis will perform accurately, with easy implementation and interpretation (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). There were also assumptions with regression analysis and correlation measures for normality, independence, linear relationships, and homoscedasticity (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). In the event the assumptions of the regression are not met, data transformations will be examined and utilized to address any existing violations that may occur based on the assumptions noted (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013).

### **Scope and Delimitations**

The specific aspects of the research problem were selected for the study relating to the public stigma of mental illness and potential associations of dangerousness among mental illness due to news media exposure of mass shooting stories and the lack of literature regarding social media. Social media was an under-researched aspect of these variables; however, this specific focus was chosen for both the societal issues of mass shootings and the fear it presents as well as the harmful stigma that comes with mental illness diagnoses. The population selected within the study was adults over the age of 18 who live in the United States. In the United States, mass shootings are six times more prevalent, when controlling for population, and due to the frequency of mass shootings, as well as social media heavily featuring American news, the participants were limited to adults within the United States (Peterson & Densley, 2021). All other populations were excluded, despite the study having a convenient sample.

There was also an expected limitation in that all participants will have access to the internet via a computer, tablet, or mobile phone. All other theories were not utilized beyond social identity theory as this is closely related to views of in-groups and out-groups and were not investigated which contributes to some issues with external validity. This study has generalizability in theory, due to the measure accessibility, the host of the questionnaire, and the analysis conducted, with a relatively easy method of replicability.

### **Limitations**

There were several limitations noted for this study. The first expected limitation was that participants would have access to the internet. Another potential barrier for this

study involved collecting primary data for the questionnaire survey, which required participant recruitment. There were concerns of low response rates, which leads to another limitation the participants were consistent with a convenient sample as opposed to a representative sample. Steps were taken to ensure that there is a participant pool consistent with the approximate amount necessary to achieve power through recruitment using SurveyMonkey, Walden University's participant pool, and social media if necessary. There was also a potential for biased participant responses, which were perceived as difficult to control given the anonymous nature of the questionnaire.

The platform for which the online survey was hosted, SurveyMonkey, had addressed some of the issues in having an efficient way to distribute and track the IP numbers for respondent tracing to limit duplicate participant responses, which may assist in biased responses frequently and the platform allows promotion for higher participant pools. There is also an additional limitation that the survey was presented in English. While not all limitations can be eliminated, the study took reasonable measures to attend to limitations as much as possible.

Likewise, there were also some limitations to the statistical measures and analysis relating to the study. Notably, there were limitations with regressions potentially leading to overfitting, insensitivity to outliers, and assumptions linearity (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). There were also threats to internal and external validity for regression. Internal validity included that the desired size and confidence intervals have the desired probability as well as that the coefficients are unbiased and consistent (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). A lack of these

qualities demonstrated a threat to internal validity. The external validity requirements noted in invalidity was met if there were differences between the population studied and the one of interest, as well as differences in the settings of the considered population (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). Limitations to the study were noted to occur if either internal or external validity is threatened.

### **Significance**

The potential contributions of this study include a better understanding of social media use and public stigmatizations of mental illness and relating to perceptions of mass shootings, particularly due to widespread fear reported through news media relating to both mass shootings and associations to mental illness (Knoll & Annas, 2016). Social media influences of both mass shootings and public mental illness stigma were an under-researched area in this field of study. More frequently, media often categorized violence with mental illness and consumers of news media can associate negative or discriminatory attitudes toward both violent offenders and others diagnosed with mental illness, such as with mass shootings, and societal biases can contribute to these stigmatizations and criminality (Varshney et al., 2016).

Social media platforms to communicate, share opinions, and distribute the news, among other things, which can consist of mass shootings and mental illness relating to violence as well. With the ability of social media to reach users globally, users were able to vocalize or perceive mental illness stigma more readily (Budenz et al., 2018). Naslund et al. (2016) noted that 71% of respondents in their study were categorized with a serious mental illness using a social media platform, demonstrating that users with mental illness

have the potential to come across content on social media that would be considered stigmatizing beyond typical access.

Both mass shooting events and mental illness stigma were discussed for social change through addressing these issues in society, as well as researching and understanding these complex issues. This study aimed to promote positive social change through several aspects regarding mass shooting events relating to perceptions of mental illness violence, public stigmatizations of mental illness, and what effects, if any, there are relating to social media. With the social media platform component examined for potential predictors or regressions, there may be additional support for additional research in the future, interventions against stigmatizing individuals with mental illness, and even in phrasing choices regarding mental illness.

### **Summary**

In summary, this chapter reviewed the background of this study, discussing the problem statement, purpose, significance, background, and other aspects to describe the reasoning for conducting this study. As has been described, the potential relationship between mass shootings, public stigma of mental illness, and social media use is under-researched, which will be further described in the following chapter. This chapter elaborated on the reasoning for the study, such as the perceived potential for positive social change, the theoretical frameworks, and the foundation of the study. In the following chapter, the literature regarding these topics is examined for the basis of this study to further explore the variables correlated.

## Chapter 2: Literature Review

Mental illness has become a widely discussed and debated topic within the United States, particularly over the course of the last several years among conversations of stigma, violence, media coverage, and mass shootings. Stigma has the potential to be harmful for individuals with mental illness due to beliefs the individual could be violent or dangerous, societal beliefs in mandated treatment, and targeted policy reforms (Pescosolido et al., 2019; Varshney et al., 2016). Perceptions of mental illness, particularly associations with the dangerousness of violence, has resulted in individuals with mental illness avoiding or not seeking out treatment (Pescosolido et al., 2019; Varshney et al. 2016). News stories where mental illness was specifically discussed or speculated following stories of violence can influence these associations (Chan & Yanos, 2018; Pescosolido et al., 2019). Following the Sandy Hook School shooting and other sensationalized shootings, a national debate in the United States argued whether mental health or gun control were the causal factors.

These associations of mental illness and violence established in society and through news media discussions have prompted concerns and fears regarding whether individuals with mental illness could potentially be violent despite a lack of statistical support. Additionally, arguments began to arise that mental illness was being used as a scapegoat for mass shooting motivations. Research in the following sections involve multiple variables such as mass shootings, mental illness, mental illness stigma, news media coverage, public influences, and how social media may influence public perspectives. While mass shootings have occurred over the course of decades, there is

limited research existing on the intricacies of variables regarding this topic, including how mental illness, mental illness stigma, and social media influence public perceptions.

### **Literature Search Strategy**

The initial search for topics started with the main keywords of mass shootings in order to ascertain an overall quantity of research. With limiting information on peer-reviewed literature within the databases, as well as attempting to find relevant references within the last 5 years, the amount of available research was refined further. The following literature, articles, and references were discovered through keyword searches including *mass shootings*, *mass violence*, *mental illness*, *mental health*, *mental illness stigma*, *social identity theory*, *social media*, *news media*, and *media* through the databases PsycARTICLES, PsycINFO, Walden University's Thoreau multi-database searches, and Google searches. The date range utilized was between 2015–2021 through all database searches, with limitations set, with the exception of Google when unable, to find full-text peer-reviewed articles. Seminal works were also included for relevant information for the topic or theoretical framework when necessary.

### **Theoretical Foundation**

The theoretical foundation for this study involved intergroup behavior, including in- and out-group behavior, and social identities. Tajfel (1974) and Turner et al. (1979) developed the theory of social identity, intergroup behavior, and how social identity can influence how people engage with in- and out-groups, group processes, and self-categorization. Intergroup favoritism occurred when an individual self-categorizes themselves toward a specific group aligning with positive rewards within the in-group

and individual's self-esteem; intergroup favoritism can influence an individual to have increased discriminatory attitudes, practices, or ideals relating to an out-group due to self-interest among the in-group (Tajfel, 1974; Turner et al., 1979).

Social identity theory utilized assumptions that people see themselves both as individuals and group members, in which their perceptions or self-concepts are affected by their identities cognitively and affectively, often in search of positive distinctiveness (Bornewasser & Bober, 1987; Brown, 2020). With the self-concept of searching for distinctiveness, particularly in a positive notion, there were social distinctions of superior and inferior groups based on a number of subjective and objective features among the social-structure factors, group boundaries, social system stability, legitimacy of relations, and hierarchy arrangements (Brown, 2020; Tajfel, 1974; Turner et al., 1979).

Depersonalization, or in stronger terms dehumanization, involves the theoretical descriptors for potential prejudice; depersonalization, as a result of prejudice, is described as an inevitable consequence of intergroup comparisons, where one group depersonalized out-group members through a continuum and out-group members can be described as abnormal or ordinary as prejudicial behavior (Billig, 2002; Tajfal, 1974; Turner et al., 1979). Discrimination and prejudice can occur through categorizations between ingroup identifications and categorizing people in an us versus them mentality (Bourhis, 2020). Intergroup biases and power differentials accounted for shifts in social dynamics that can result in depersonalization (Platow et al., 1990; Sachdev & Bourhis, 1985). Furthermore, research has demonstrated that systemic discrimination can have consequences for individuals labeled within the discriminated group (Bourhis, 2020).

Evidence of mental illness and social identity theory could affect inter-group classification; differentiation is also dependent on how the individual internalized being part of the in- or out-group membership and is influenced by the individual's mental health and social contexts (Jackson et al., 2009). Prejudices and stigmatizing attitudes resulted from intergroup prejudices, including toward individuals with mental illness resulting in negative and trivializing behaviors (Pescosolido et al., 2019; Reavley et al., 2016; Robinson et al., 2019). Those diagnosed or with histories of mental illness as a social group were threatened with further strain in a community or societal setting through intergroup influences (Jackson et al., 2009). These stigmatizing intergroup interactions and views have farther reaching effects due to the internet and social media; social identity theory and intergroup views are being viewed for potential influences through social media (Budenz et al., 2018; Robinson et al., 2019).

### **Literature Review Related to Key Variables and Concepts**

Research has been gathered to examine concepts of mental illness and stigmatizing effects, mass shootings, news media, and social media. A literature review was performed to analyze these variables and previous relevant research conducted. These variables have been examined in the context of prior research, hypotheses, theories, and prior documented events. The following sections relate to the key variables and concepts this study is examining.

#### **Mental Illness and Stigma**

According to the National Alliance on Mental Illness (NAMI; 2021) and American Psychological Association (2018), one in five adults in the United States

experiences mental illness each year, while one in 20 adults in the United States experiences serious mental illness per year. Among the difficulties individuals with mental illness may encounter, public and individual prejudices, judgments, and discriminatory beliefs can be expressed through societal stigmatizing behaviors, laws, and policies. Annually in the U.S. among adults, major depressive episodes makeup 7.8% or 19.4 million people, schizophrenia makes up less than 1% or 1.5 million, bipolar disorder makes up 2.8% or 7 million, anxiety disorders make up 19.1% or 48 million, posttraumatic stress disorder makes up 3.6% or 9 million, obsessive compulsive disorder makes up 1.2% or 3 million, and borderline personality disorder makes up 1.4% or 3.5 million people, demonstrating how prevalent some disorders can be (National Alliance on Mental Illness, 2021).

While mental health awareness is present, individuals with severe mental illness are frequently undertreated or not treated at all, which may be attributed to stigma for poor treatment statistics (McGinty et al., 2015; McGinty et al., 2013). Stigma resulted from public prejudices where individuals with mental illness feel discriminated against and can result in several types of stigmas resulting from stereotypes of dangerousness (Pescosolido et al., 2019). There is potential for individuals with mental illness to experience multiple kinds of stigma such as self-stigma (e.g., internalizing beliefs), public stigma (e.g., society or cultures), and structural stigma (e.g., policies or laws). Following violent stories, news media stories speculated dangerousness and the perpetrator's mental illness, diagnosis, history, and treatment as publicized through news stories (Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016).

Stigmatizing attitudes can isolate people with mental illness and make societal expectations, such as finding and maintaining a job much more difficult (Robinson et al., 2019; Varshney et al., 2016). Stigma can also influence individuals with mental illness ranging from decreased treatment seeking (Hoffner et al., 2017), lack of support toward civil rights including treatment choices, negative beliefs, exclusions, misconceptions, specific policy reforms targeted toward individuals with mental illness, public pressures for mandated or coerced treatment, and unsubstantiated beliefs regarding individuals with mental illness such as dangerousness (Pescosolido et al., 2019; Reavley et al., 2016; Varshney et al. 2016). But some evidence supports that individuals with mental illness are more prone to be victimized rather than be violent themselves (Peterson & Densley, 2021; Reavley et al., 2016).

Public perceptions commonly mistake mass violence offenders' troubling behavior or issues as having mental illness, causing misunderstandings of motivations and causes for the mass violence (Knoll & Annas, 2016; Pescosolido et al., 2019). Due to the lack of supports and public focus of individuals with mental illness being violent, the concerns of dangerousness and general public fear lead to stigma applied inappropriately toward all individuals with mental illness (Pescosolido et al., 2019). Thus, prejudice about the underlying causes of mass shootings further involve discrimination toward individuals with mental illness determining their own treatment (McGinty et al., 2018; Pescosolido et al., 2019). Policies that targeted mental illness shift attention from other potential causal factors of mass shootings, such as gun access and isolation among mass shooting perpetrators, and put pressure on expectations for tools to identify mass violence

perpetrators who frequently have no prior history of violence (Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016). Further, medical providers have been found unwilling to treat individuals with mental illness as effectively in emergency departments and intensive care units (Pescosolido et al., 2019).

### **Disorders/Diagnosis**

Mental health disorders and diagnoses have been frequently studied for associations with violence among prevalence rates. NAMI (2021) reported approximately 2 in 5 people, or 2 million times per year individuals with serious mental illness are booked in jail (e.g., 37% in state and federal prisons and 44% in local jails). Given the perceived links of individuals with serious mental illness and legal histories, researchers have investigated these interactions to discern the underlying relationships. While mental illness has been strongly associated with suicide as more than half of firearm-related fatalities within the United States, most individuals with mental illness are never violent but media enforces reinforced popular beliefs that mental illness frequently relates to violence (Swanson et al., 2015). However, there is a link between violence and mental illness among public perception that is encouraged and enforced through news coverage of violent events, including mass shootings (Swanson et al., 2015).

Violence among those with mental illness is a complex societal issue that frequently occurs due to similar reasons than those not diagnosed with mental illness with reasons that vary widely (McGinty et al., 2018; Swanson et al., 2015). Certain psychiatric symptoms have the propensity to elevate the risk of violence among those with mental illness such as delusions, suspiciousness, and severe anger, as well as if individuals abuse

illegal substances (Knoll & Annas, 2016; Swanson et al., 2015). By narrowing the definition to individuals with mental illness, individuals who are acutely distressed or at risk may not be identified due to mental illness not necessarily contributing or sufficiently explaining the perpetrator's rationale (Skeem & Mulvey, 2019).

The consequences of mental illness beliefs extended to stigmatizing a huge and diverse population that may never be involved in violence as well as supporting laws and policies that restrict individuals with mental illness regardless of effectiveness (Knoll & Annas, 2016; Skeem & Mulvey, 2019). Due to the wide-ranging variety of mental health conditions through hundreds of listed psychiatric diagnoses, as well as the spectrum to which symptoms can occur in severity, it is difficult to make blanket statements of mental illness in association with mass shootings and violence (McGinty et al., 2018; Skeem & Mulvey, 2019). Mental illness has emerged as the scapegoat for mass violence and restricting individuals with mental illness as a method of reducing mass violence and the mental health system, despite little to no evidence supporting these assertions (Knoll & Annas, 2016; Skeem & Mulvey, 2019). Adopting a broad definition of mental illness was argued to pathologize traits, features, and experiences of individuals with mental illness and would fail to determine the understanding of the extent mental illness may contribute to mass shootings, limiting the potential to address methods of preventing these events (Skeem & Mulvey, 2019). Assuming the perceived connections, research regarding mental illness diagnoses and violence was further examined.

### **Associated Disorders & Diagnoses Related to Violence**

Given the associations of mental illness and violence, the disorders related to

violence, the prevalence of violence, and commonly associated disorders were all evaluated for links frequently found through research. Much of the research concluded those with serious mental illness are not violent; most acts of violence are committed by those without a mental illness diagnosis or history, and individuals with mental illness are statistically more likely to be victims of violence themselves (Peterson & Densley, 2021; Reavley et al.; 2016, Stuart, 2003; Treatment Advocacy Center, 2016). Individuals identified with serious mental illness have severe and persistent symptoms that significantly impact day-to-day living by affecting moods, behaviors, feelings, and thoughts (American Psychiatric Association, 2018; National Alliance on Mental Illness, 2021). Disorders noted within serious mental illness included schizophrenia-spectrum disorders, bipolar disorder, and major depressive disorder (American Psychiatric Association, 2018; National Alliance on Mental Illness, 2021). Personality disorders, such as antisocial personality disorder, were not typically included in noted serious mental illness figures, and there is typically an increased risk for violence associated with antisocial personality disorder (American Psychiatric Association, 2018).

At the time of Knoll and Annas's (2016) article, most gun-related deaths on a yearly average were suicides, while mass shootings perpetrated by individuals with serious mental illness were found to be less than 1%. Violent crime by persons with serious mental illness at the time of this article was approximately 3%, with an even smaller percentage involving a firearm (Knoll & Annas, 2016). While some of the shooters' motivations, history, and mental illness were discovered following the shooting, the diagnosis of mental illness for mass shooters is frequently and largely speculated by

media, professionals, and public opinion (Hoffner et al., 2017; Vasturia et al., 2018).

With the small percentage of gun violence perpetrated by persons with mental illness, laws and policies targeting gun violence were likely to be ineffective, particularly since many mass shooting offenders lacked a history of mental illness treatment or involuntary psychiatric hospitalizations (Knoll & Annas, 2016). Statistically, individuals with mental illness made up a small number of violent offenders, and furthermore, are at an even lower risk of violence for stranger homicide (Varshney et al., 2016). Due to how ineffective laws and policies appeared to be, given the small percentage of firearm or violent offenders with mental illness, these laws and policies likely contribute to misconceptions linking gun violence to mental illness (Knoll & Annas, 2016).

Pescosolido et al. (2019) compared schizophrenia, alcohol dependence, depression, and daily troubles among participant responses in the years 1996, 2006, and 2018. The authors found perceptions of violence and support for coerced treatment had a significant rise for schizophrenia, as well as increases for the other noted categories (Pescosolido et al., 2019). The increases in support were believed to be related to political discourse influencing policies, influencing public opinion regarding dangerousness or violence, and increasing mental illness stigma (Pescosolido et al., 2019). Skeem and Mulvey (2019) noted there is a frequently used explanation for mass shooting motivations that argue the perpetrator must have had a mental illness; there is a distinct differentiation between serious mental illness (e.g., schizophrenia, bipolar disorder, major depression) from emotional, personal, or life circumstances that have caused distress. It was difficult, given the nature and differences of the population in the United States and

globally among individuals with mental illness as well as symptomology, to generalize uniformly that individuals with mental illness are related to violence without the likelihood of oversimplification and error (Knoll & Annas, 2016; McGinty et al., 2018).

Schizophrenia and chronic psychosis had a slightly higher elevated risk of violence and homicides than the general population, but it was noted despite this, stranger homicides by an individual with schizophrenia or chronic psychosis are still statistically low (Knoll & Annas, 2016). During the time of Knoll and Annas' (2016) article, with the assumption of a population of 320 million within the United States, it was estimated that approximately 23 people per year, on average, were killed by a person with mental illness, which was statistically below being struck by lightning. While some mass shooting perpetrators had psychiatric treatment histories, a higher percentage of mass shooters did not seek out mental health treatment and were able to function even at a marginal level to avoid becoming part of the mental health system (Chan & Yanos, 2018; Knoll & Annas, 2016).

Despite the statistically low occurrence rate of individuals with mental illness being violent, there is a prejudice or bias frequently present, in which there are outcries for legal coercion of mental health treatment (Pescosolido et al., 2019). Laws and policies that target mental illness in association with gun violence have the potential to reinforce negative stereotypes and stigma (Knoll & Annas, 2016). Up until the time of Knoll and Annas's (2016) article, criminal insanity and incompetence to stand trial, as well as civil commitment, had not been implemented for most perpetrators of mass homicide, particularly given the low percentage of violent acts that were attributable to serious

mental illness and many perpetrators avoiding the mental health system. “Mass shootings by people with serious mental illness remain exceedingly rare events and represent a fraction of a percent of all yearly gun-related homicides. In contrast, firearm deaths by suicide account for the majority of yearly gun-related deaths” (Knoll & Annas, 2016, p. 98). Policies and laws targeting individuals with mental illness and violence have key concerns or flaws beyond the stigma and focused nature on this group; mental health professionals have great difficulty in determining risk prediction, particularly when it comes to statistically rare violence like mass shootings (Rueve & Welton, 2008; Swanson et al., 2015).

### **Firearm Access**

Firearm access and gun laws were limited in the United States, largely due to cultural and political opposition to gun restrictions. Firearm restrictions exist in 46 states within the United States, excluding Colorado, Indiana, Kentucky, and New Hampshire; however, a federal law, 18 U.S.C. § 922(d) noted if an individual has been adjudicated as mentally defective or committed to a mental institution, it is unlawful for anyone to sell or dispose of any firearms or ammunitions to the person in question (Bureau of Alcohol, Tobacco, Firearms, and Explosives, 2021; National Conference of State Legislatures, 2018). Despite this, firearm access was still largely available to individuals through secondary access or if the individual had not been adjudicated as unable to possess the firearm or involuntary commitment (Schildkraut et al., 2018). Within the United States, there were 120 guns per 100 civilian inhabitants, with approximately 400 million guns in circulation since 2006 (Karp, 2018; Peterson & Densley, 2021).

Much of the yearly statistical gun deaths related directly to mental illness are suicide; however, mass shootings garnered far more attention and publicity from the media (Knoll & Annas, 2016; McGinty et al., 2018). Violence against others and serious mental illness in the United States population was less than 3% of violence reported; however, it is often assumed by the general public that individuals with mental illness are a high-risk population for violence (Knoll & Annas, 2016). Swanson et al. (2015) noted that despite public perceptions of mental illness and dangerousness where policies and laws are catalyzed through public attention, the focus on dangerousness among mental illness lacks statistical support with most individuals with serious mental illness being nonviolent and has instead been more strongly associated with risk of suicide, which accounts for approximately half of U.S. firearm fatalities. One preventative aspect that was noted by Knoll and Annas (2016) was that individuals who potentially could become mass shooters or perpetrate a mass shooting typically will tell other parties their intentions and plans; however, these plans or threats are not always reported to law enforcement.

### **Mass Shootings**

Mass shootings, despite their rare occurrence, caused alarm, outrage, and fear publicly; the rationale and reasons behind mass shooting events are typically poorly understood and complex (Knoll & Annas, 2016; Skeem & Mulvey, 2019). Due to the violence of mass shootings, the lay public and media have established assumptions that the perpetrator has a history, diagnosis, or symptoms of mental illness, in which mental illness is the assumed cause of the perpetrator's actions (Knoll & Annas, 2016). While

some mass shooting perpetrators have been found to have a history of mental illness and treatment history, the majority of perpetrators do not have a history, have stressors, and turmoil that have gone untreated (Chan & Yanos, 2018; Knoll & Annas, 2016; McGinty et al., 2018). Mass shooters, despite the misconceptions prevalent in media and perceptions, were not individuals who impulsively snap unavoidably; through evidence, most, if not all, mass shootings were planned preemptively (Schildkraut et al., 2018). While the reasoning behind why mass shootings were committed is largely unknown, there are common factors found among perpetrators who survived or left information after the mass shooting (Chan & Yanos, 2018; Knoll & Annas, 2016; Schildkraut et al., 2018).

Mass shooters who do not survive the event typically do not plan to survive due to suicide or confrontation with police (Knoll & Annas, 2016; Reavley et al., 2016). Frequently, the common factors among mass shooters are described as anger, feelings of revenge, social isolation or alienation, advanced planning, and a lack of accomplice (Knoll & Annas, 2016). There were also common factors among many mass shooters that these perpetrators were bullied or isolated during their childhood, which resulted in social isolation or alienation, paranoid traits, suspiciousness, grudge-holding, feelings of resentment and rumination, and beliefs that others are rejecting and uncaring (Knoll & Annas, 2016; Schildkraut et al., 2018). Multiple complex biological, psychological, and social factors were also analyzed for causal factors of mass shootings such as brain pathology, paranoia, negative or fragile self-image, violent revenge fantasies, isolation, lack of prosocial supports, ostracized by peers, traumatic life events, emotional turmoil,

and any potential psychopathology (Knoll & Annas, 2016; Schildkraut et al., 2018).

While there was no accepted mass shooter typology, paranoid persecutions and revenge fantasies have been present in some cases as a commonality, although not at a level described by clinical psychosis; frequently, trends of motives behind mass shootings involve revenge motivations from social alienation and perceived injustices (Knoll & Annas, 2016). Knoll and Annas (2016) noted that despite previous efforts, there are not any classifications or systems to study mass murder, including a common definition, which could be helpful for understanding, reporting, and researching these events. Based on prior research and information gathered from previous mass shootings, the motives of the shooters have, for the majority, differentiated from mental illness, and whether the individuals may or may not suffer from a diagnosable mental illness is difficult to define based on available diagnoses and treatment (Knoll & Annas, 2016; Schildkraut et al., 2018).

Arguably, Knoll and Annas (2016) have stated that the individuals who commit mass shootings may remain inaccessible to mental health professionals, and mass shooters' behaviors. Notably, motivations were noted to be distinguished from psychiatric illnesses, as the direct causal associations are not supported by evidence and cause overgeneralized views that likely cause more harm than good (Knoll & Annas, 2016). Given the unknown nature and motivations of a mass shooter as well as influences from news media stories, there was a prevalent conceptualization or public belief that mass shooters have an undiagnosed or untreated mental health disorder (McGinty et al., 2013; McGinty et al., 2018; Schildkraut et al., 2018).

### ***Definition***

The definitions of mass shootings were not standardized among law enforcement, researchers, media, or any official standards (Schildkraut et al., 2018). At the time of their article up until the present time, Booty et al. (2019) noted there was no federal definition of a mass shooting, which caused difficulty in tracking statistics through sources and databases. Congress defined a mass shooting as three or more people dead from a mass shooting, while others, such as the FBI, do not provide a clear definition or vary in the quantity of dead in the shooting or whether the perpetrator is included (WTHR.com, 2021). The Federal Bureau of Investigation (FBI) opted to instead classify active shooter cases as opposed to mass shooting cases, and recorded that there were 277 active shooting incidents between 2000 and 2018 (Federal Bureau of Investigation, 2018). Additionally, the FBI noted there were an additional 28 shootings added to the active shooting incidents statistics in 2019 (Federal Bureau of Investigation, 2020). In Knoll and Annas's (2016) article, mass shootings or mass murders were defined as three or more victims at a single location or event, although it was acknowledged that there is difficulty researching mass shootings due to a lack of a standardized definition.

Due to this lack of standardization, many definitions have been provided, which is a cause for confusion and difficulty in classifying mass shootings for research and statistical purposes. Mass shootings have varied in definition, but according to Schildkraut and Elsass (2016), mass shootings are identified as a targeted violent event between one or more shooters in a 24-hour period of time, with victims and locations determined through either a random or targeted reason, excluding terroristic, militant, or

gang-related activity. While a unified formal mass shooting definition has not yet emerged from law enforcement or researchers, the commonly utilized definition of a mass shooting is at least three to four people killed, excluding the shooter (Knoll & Annas, 2016; Silverstein, 2020).

### ***Prevalence Rates***

Statistically, mass shootings are a rare event with most of the population being at low risk of being a victim; however, despite this, recognition and acknowledgment to be prepared for these events are a priority for the general public and law enforcement in order to lessen potential tragedy (Schildkraut et al., 2018). As noted, the FBI had classified 28 active shooting cases in 2019, with no data yet published for 2020 (Federal Bureau of Investigation, 2020). Bates (2020) reported that, based on the criteria of four or more people shot, either injured or killed, and without mention of excluding the perpetrator, over approximately 600; it was also reported in the same article that over 19,000 were killed in firearm-related incidents in 2020.

Although there have been noted increases in public fear regarding mass violence, mass shootings have not statistically increased over time but have increased in lethality and public prevalence (Schildkraut et al., 2018; Skeem & Mulvey, 2019). According to Knoll and Annas (2016), 3% of violence perpetrated by individuals with mental illness was committed against others. Mass shootings have been prominent in news media coverage for several decades in the United States, which influences public perceptions of mental illness and violence (Schildkraut et al., 2018; Skeem & Mulvey, 2019).

Frequently, researchers citing studies of individuals with serious mental illness

arrested for a violent crime (e.g., robbery, assault) were not comparable or generalizable to mass violence, which causes uncertainty in estimations of potential relationships between mental illness and mass violence (Skeem & Mulvey, 2019). Despite being unable to generalize common violence to mass shootings, there was evidence that individuals with mental illness are no more likely to acquire, possess, or carry guns than individuals without mental illness diagnoses (Skeem & Mulvey, 2019). In 2019, there were 417 documented mass shootings according to Silverstein's (2020) criteria, which was an increase compared to 382 in 2016, 346 in 2017, and 337 in 2018.

Individuals with serious mental illness were less likely to be involved in violent crime than the general population (Skeem & Mulvey, 2019). "The fact that serious mental illness rarely *explains* violence is barely recognized in common discourse about mass violence" (Skeem & Mulvey, 2019, p. 96). One study noted that 13 – 15% of mass shooters received formal diagnoses of a psychiatric disorder, with estimates of 30% confirmed or suspected of having mental health problems, and 17% appeared to have distinct psychosis symptoms (e.g., hostility or paranoia) (Skeem & Mulvey, 2019). Despite noting that there has not been a statistical rise, mass shootings have, over the last several decades increased in quantity, dating at least to the 1960s in the United States; causes or influences of mass shootings are speculated to involve social influences with media, cultural shifts, news coverage of tragedies, social media, technology, and the Internet playing a significant role (Knoll & Annas, 2016; Schildkraut et al., 2018).

### ***Mass Shooting Characteristics & Shooter Demographics***

Mass shooter characteristics have been statistically higher among males, but many

of the demographic data vary among perpetrators, with patterns in behavior being more prevalent than the demographic commonalities (Schildkraut et al., 2018). Prior to committing the mass shooting, the offender typically has no criminal record or a psychiatric history, and appears as a law-abiding citizen (Schildkraut et al., 2018). Mass shootings media attention focuses on mental illness, but sociocultural factors (e.g., anger, social isolation or alienation, violent revenge fantasies, and feelings of being aggrieved) have not received as much attention (Knoll & Annas, 2016). It was noted by Knoll and Annas (2016) that social alienation, isolation, and rejection have all been social phenomena long before mass shootings began occurring, but mass shootings have been recorded since the invention of the gun.

Through tracking mental health records and gun-disqualifying filings, firearm purchase or transfer denials in the United States accounted for 6% in 2013 (Skeem & Mulvey, 2019). Based on these records and studying mass shooting perpetrators, it was noted that very few perpetrators would have been disqualified from purchasing a gun based on their mental health background (Skeem & Mulvey, 2019). Frequently, these news stories about mass shootings fail to discuss other personal characteristics, instead focusing on the perpetrator's state of mind during the shooting, which often stigmatizes mass shooting portrayals (Budenz et al., 2018).

### ***Shooter's Mental Illness Status***

Following the mass shooting, the public usually seeks answers for the whys behind the shooting, including the motivations, with suppositions on whether the shooter was mentally ill, evil, or both (Schildkraut & Elsass, 2016). Knoll and Annas (2016)

discussed, through an extensive literature review, the concepts of mass shootings and mental illness to address common misconceptions through evidence and supported resources. Many mass shootings are unexplained, with the shooter dying during the event or once law enforcement responds, leaving public speculation open to the causes and motives (Knoll & Annas, 2016).

Schildkraut and Elsass (2016) noted that the public and news stories can make assumptions about the offender's motivations, like that all shooters are equally driven by the same motivators; however, by making these assumptions and targeting actions like policies and laws, not all preventative strategies will target what motivated the offender and whether the prevention will reduce lethality or improve safety. Whenever acts of violence are highly publicized, there are frequent public opinions and reactions regarding the perpetrator's mental illness and presumed state of mind (Pescosolido et al., 2019). Mass shootings, which are frequently elevated in news media, support associations in news articles linking mental illness to acts of violence (Budenz et al., 2018). Peterson and Densley (2021) noted that of the mass shooting events they researched, 70 percent of school mass shooters had a known history of trauma, while 80 percent of all mass shooters in their database were in a state of crisis prior to committing the mass shooting.

Due to the nature of mass shootings, it was difficult to accurately determine whether mass shooting perpetrators suffered from a mental illness prior to the event, as the perpetrators frequently die during the event, and assessment or documentation is difficult or impossible based on information following the shooting (Skeem & Mulvey, 2019). Additionally, many mass shooting perpetrators lacked a prior documented

psychiatric background, and frequently following these events, speculation is established through police reports, media accounts, individuals who knew the perpetrator prior to the event, and others making informal diagnoses that are influenced by the event itself (Skeem & Mulvey, 2019). Peterson et al. (2021) coded 172 mass shooting events relating to psychosis as symptoms among shooters, as the role of psychosis was hypothesized due to the frequent blame of mental illness relating to mass shooting violence. Psychosis symptoms were viewed on a continuum, as well as other motivations, to establish if the shooter's mental health history directly played a role (Peterson et al., 2021).

From Peterson et al.'s (2021) findings, 69% of mass shooting cases coded had no psychosis featured, 11% played a minor role, 9% played a moderate role, and 11% played a major role in the 172 cases coded. While there was a limited association between serious mental illness and violence, it plays a limited role in mass shootings, despite media portrayals (Skeem & Mulvey, 2019). Statistically, individuals with mental illness have not been found to have an elevated risk of violence despite these public perceptions (Budenz et al., 2018).

Mass shooters, when considering mental health factors, were frequently found to have traits or tendencies toward suicidality and serious depression (Schildkraut et al., 2018). Knoll and Annas (2016) noted that within Western society, consideration of narcissism, media, problems with self-esteem, paranoia, feelings of persecution, depression, suicidality, and being rejected socially all require further investigation as contributing factors. It has been suggested since the 1990s, particularly with the Columbine watershed event, that many mass shooters are following a script, in which the

actions of committing a mass shooting are glamorized, fame or celebrity is an achievement, they are elevated, and valuable in order to address social rejection, being denounced by society, and humiliation through addressing how they felt wronged (Knoll & Annas, 2016; Schildkraut et al., 2018). Peterson and Densley (2021) noted that many perpetrators of mass shootings have a common motivation in that the perpetrators see themselves as victims and the mass shooting is thought of as a restoration to a believed injustice. Potentially, the mass shooter's feelings of being persecuted, narcissism, and glamorizing the act of what is perceived as revenge may then enact a reverse specialness or antihero narrative (Knoll & Annas, 2016).

### **Media Coverage for Mass Shootings**

News media stories had the potential to influence public perception of mental illness through stories of violence, speculations of the offender's mental illness, elicitation of fear, and associations of dangerousness (Chan & Yanos, 2018; Pescosolido et al., 2019). News media stories about mass violence, mass shootings, and mental illness can instill societal fear of mental illness and violence through news coverage, which can influence public mental illness stigma (Lowe & Galea, 2017; McGinty et al., 2018; Parcesepe & Cabassa, 2012; Varshney et al., 2016). Mass shootings, despite being statistically rare, garnered excessive media attention for its sensational nature; however, not all shootings receive the same amount of attention (Schildkraut et al., 2018).

Schildkraut et al. (2018) found media attention predictors of coverage were based on race or ethnicity, victim count, and location of the shooting; greater coverage was found when the perpetrator was Asian, locations were at schools, and the victim count

was elevated. Due to continuous coverage of mass shootings in the news, there was a common misconception that mass shootings occur more frequently than its statistical probability of occurrence (Schildkraut et al., 2018). The presentation of mass shootings in media was problematic both for the glorification of the shootings and the increasing fear of crime for news consumers (Schildkraut & Elsass, 2016). Media portrayals of mass shooters vary from unstable, irrational, mentally ill, to an anomaly, as most Americans try to make sense of the violence (Schildkraut et al., 2018).

This media coverage and attention to mass shootings had given the general public fear of becoming a victim of a mass shooting despite overestimations of this possibility; these overestimations and fear of being a victim of a mass shooting increase demand for security, prevention, and legislative changes (Knoll & Annas, 2016; Peterson & Densley, 2021; Schildkraut et al., 2018). In 2019, one-third of adult respondents stated they feared going places such as grocery stores and movie theaters and avoided them due to worrying about becoming a mass shooting victim (American Psychological Association, 2019; Peterson & Densley, 2021). Some of the more significant factors of news coverage and focus were predicted by victim death tolls and the number of injured victims (Schildkraut et al., 2018).

The purpose of Schildkraut et al.'s (2018) study was to determine and identify what characteristics of 90 mass shootings would contribute to the newsworthiness and prominence of the selection. While other factors did not necessitate predictability for mass shooting newsworthiness, one factor that did appear to influence any media attention was the total number of victims the shooting had and injuries; the noted levels

of violence in the shooting were found to be one of the most influential factors in how much coverage the story received within Schildkraut et al.'s (2018) study. There was no consistent predictor for how mass shootings receive coverage; based on Schildkraut et al.'s (2018) study, factors in society, the country, and the world must also be considered in whether reporting and news coverage feature mass shootings.

### ***Type of Coverage***

News coverage has begun to shift over time with the introduction of new technology and shifts in how news consumers receive information. News coverage of mass shootings has largely consisted of traditional means (e.g., newspapers, television, radio broadcasts, and more recently news media websites), as well as social media, which at times is incorporated with news media websites Budenz et al., 2018; Schildkraut et al., 2018). Early news coverage, up until recent reporting, discusses the shooter's mental status, dialogue about the shooter's potential mental illness, and if the shooter was mentally unstable; these news stories had increased public fear and strengthened unsubstantiated public views of mental illness and gun violence that can cause stress-related responses, exacerbate public stress, and exacerbate sensationalizing tragedies (Knoll & Annas, 2016). Media responsibility was frequently discussed in dialogue regarding mass shootings due to glorifying, demonizing, and sensationalizing the mass shootings, particularly when the focus of the stories is on the perpetrator (Knoll & Annas, 2016).

### ***Exposure***

Media exposure, whether through traditional news media or social media, has an

extensive reach and influence, and a reaction from consumers of that particular news. Budenz et al. (2018) examined publicly available tweets regarding the Fort Lauderdale Airport shooting as a case study; they examined tweets that discuss mental health or illness and stigmatizing messages both in Florida and Virginia. An abundance of information regarding both mass shootings and mental illness was provided to the public through news media, which can use biased or speculative language implying the perpetrator is an individual with mental illness (Budenz et al., 2018). Additionally, news stories had the potential to imply that individuals with mental illness are also dangerous, violent, or unpredictable, which can contribute to negative attitudes or stigma about mental illness (Budenz et al., 2018; McGinty et al., 2018).

Homicides and violent crime were frequently found as newsworthy due to gaining and retaining public attention, despite its statistically less common occurrence; however, not every case of violent crime or homicide was found to be as sensational or newsworthy as others (Schildkraut et al., 2018). Factors that make stories about mass violence, terrorism, and mass murder were investigated by Schildkraut et al. (2018) to determine why some news stories have a higher level of attention and prominence compared to others. Mass media were found to be a primary form of information for the general population, which requires examination of how the news shapes public discourse of crime and how crime news markets their media as a product to consumers to keep them hooked (Knoll & Annas, 2016; Schildkraut et al., 2018). Factors that contributed to newsworthiness included whether the victim was labeled or viewed as worthy, the number of deaths and injuries, victim and offender demographics (e.g., age, race, gender,

occupation, etc.), and socioeconomic status (Schildkraut et al., 2018).

Silva and Capellan (2019) conducted a comparative analysis of news media coverage regarding four types of public mass shooters (e.g., rampage, disgruntled employee, school, and lone wolf); in their findings, both school and lone-wolf shootings received a far higher amount of coverage in the news. It was suggested based on Silva and Capellan's (2019) results that media attention may be a contributing factor to policies and public perception of school and lone-wolf shootings occurring far more frequently, given the attention for both types. While a lack of official classification is not present, different characteristics, environments, and motivations for public mass shooters share common ground comparatively that support labels such as a school, rampage, disgruntled employee, or lone-wolf shooter (Silva & Capellan, 2019).

Public mass shootings were a statistically rare and infrequent occurrence; news media coverage informs and shapes the general public's understanding of mass shootings, such as the risk of being victimized, perpetrators' threats, and responses to the shooting (Schildkraut et al., 2018; Silva & Capellan, 2019). "Mass shootings, regardless of the location in which they take place, most often result in an outcry by the media, politicians, and public for increased and improved security measures" (Schildkraut & Elsass, 2016, p. 116). Given the level of cultural trauma and awareness that accompanied high-profile mass public shootings, the implications of these shootings were studied through coverage, public perceptions of risk, conceptualizations of the shooters, and security measure implementations (Silva & Capellan, 2019). Labeling potential perpetrators contributed through media coverage speculation and fear of mass public shootings, which

can cause stigmatization when mental health is included in the discussion of the perpetrator's characteristics and motivations (McGinty et al., 2018; Silva & Capellan, 2019).

Stigmatization, fear of mass public shootings, or the perception of the mass shooters had the potential to be harmful to those stigmatized, including potential harm or encouraged violence toward said groups, while also contributing to policy and law decisions that are not demonstrated as effective (McGinty et al., 2018; Schildkraut et al., 2018; Silva & Capellan, 2019). Silva and Capellan (2019) noted that, most significantly, school and lone-wolf shootings received far more news coverage despite their occurrence being statistically lower than rampage and disgruntled employee shootings. Despite the low statistical occurrence of lone-wolf or school shootings, there was a societal impact with news coverage that focuses contribute to unwanted fear, misconceptions, and ineffective measures as a response (Silva & Capellan, 2019).

### ***Language Used***

Due to negative stereotypes regarding mental illness, violence, and perceived dangerousness, Hammarlund et al. (2020) examined the relationship between the mass shooter's mental health status, language use, and inclusion of positive and negative background information in online media. Using the criteria of three or more victims to classify as a mass shooting, Hammarlund et al. (2020) considered 67 mass shootings in 2015 for the study and gathered 811 articles to code for variables; their results found that out of 53 shooter cases, 51% had no indication or history of mental illness, while 29% had a diagnosis of mental illness, and 21% had an indication of a mental illness. The

shooter's mental health status was significantly related to victim fatalities, location, and motivation behind the crime; articles regarding shooters within the mental illness group typically featured more positive and negative background information, sensationalized language, negative descriptors, and less angry language (Hammarlund et al., 2020).

Race and age were also factors in the analysis, in which non-White shooter articles frequently discussed more positive and negative background information, more mentions of substance abuse history, sensationalized and sad language, and less information about the victims' background (Hammarlund et al., 2020). It was also noted in the results that articles featuring more victim fatalities frequently mentioned positive and negative background information, reported substance abuse history, negative person descriptors, stigmatizing and sensationalizing language, and more information on the victims' background (Hammarlund et al., 2020). The results of the study did not meet the expectations that Hammarlund et al. (2020) expected based on prior research, however, the present findings may represent changes in how the online media coverage was conveyed from sources that also utilize print and television through attempts to humanize or individualize individuals with mental illness (Hammarlund et al., 2020).

Hammarlund et al. (2019) noted that research regarding online public perceptions of mass shootings and mental illness had been lacking; however, their own research yielded information about how stories were phrased and language selections regarding mass shootings and the shooter's mental illness diagnosis. Regardless of the presence of mental illness mentioned in articles about shooters, stigmatizing language was present equally often; this information suggested that news writers will discuss mental illness

regardless of relevance (Hammarlund et al., 2020, p. 227). The results of Hammarlund et al.'s (2020) study may have shown subtle biases of mental illness and violence endorsed due to language choices indicating the unknown motivations of the mental illness group; this argument from the pattern of the result may indicate mental illness is not a sufficient motive for committing a mass shooting, which could further support increased beliefs of dangerousness and lack of responsibility among individuals with mental illness.

### ***Potential Imitation***

Despite the focus and publicity of mass shootings, they were infrequent and rare events that are perpetrated for multiple motivations that make it hard to anticipate, avert, or prevent (Knoll & Annas, 2016; Schildkraut et al., 2018). Many mass shooting perpetrators have credited other mass shootings and media exposure as an influence (Knoll & Annas, 2016; Schildkraut et al., 2018). Due to the internet and social media, as potential factors to amplify concepts of celebrity, a script has formed in Western cultures of the tragic antihero (Knoll & Annas, 2016). News media stories attempted to determine shooter motivations, which researchers label as causal factors for mass shootings, which center around mental health, guns, and violent media (Schildkraut, 2018).

The Columbine school shooting in 1999 became a watershed event that changed how news media reported mass shootings and had a significant public impact (Schildkraut, 2018). The Columbine High School shooting changed how news coverage presented mass shootings nationwide and was identified as a watershed event that was a catalyst for national discourse (Schildkraut et al., 2018). Mass shootings, such as Columbine or the Sandy Hook school shooting, are framed in news media as issues

identified in society, such as gun control, mental health care, and violent media impacts (Knoll & Annas, 2016; Schildkraut et al., 2018). The Columbine and Sandy Hook school shootings were both found to be watershed events that shaped how news media addressed mass shootings and influenced public perception through changes in airtime, coverage, societal discussions, and discourse (Schildkraut et al., 2018). Other particularly deadly or newsworthy mass shootings that permeated news media coverage and society impacts, such as Virginia Tech, Parkland, the Pulse night club, and the Las Vegas strip shooting in 2017, El Paso, and many more each spark national discussions, potential imitations, political debates, and general public fear of being a public mass shooting victim (Schildkraut et al., 2018).

### **Sources of Communication**

While the United States was the focus of many studies on negative media portrayals and their influences on mental illness, there is also supporting evidence that globally, mental illness is portrayed negatively in newspapers and television (Hammarlund et al., 2020; McGinty et al., 2014). With shifts in how media is consumed following digital advancements and technological changes, the use of online and mobile content has increased as a source of news (Hammarlund et al., 2020). Social media has emerged as a method not only to consume news online but also to communicate regarding the stories posted (Hammarlund et al., 2020; Shortland & McCabe, 2019).

### ***In-Person Versus Social Media***

Due to advances in technology and the shifting nature of newspapers moving to a digital format, the Internet has created the ability to access news stories more quickly and

generate more than previously (Schildkraut & Elsass, 2016). Social media, due to its popularity on multiple sites and platforms, was a method for users to access news and communicate with people on a global scale. In 2018, there were 244 million active social media users in the United States (Clement, 2020). With social media sites reaching farther geographic areas than where the users reside, news and public perceptions have the ability to share public opinions and discussions farther than where an incidence occurs; negative correspondence also can reach further observers regarding the subject of mass shooting events and mental illness stigma (Budenz et al., 2018; Jones et al., 2016; Robinson et al., 2019).

Social media has, in recent years, had a greater role in the media coverage of mass shootings, communication about mass shootings, and how the perpetrators share letters or public statements about their attacks (Shortland & McCabe, 2019). Much of the focus in research has focused on traditional news media sources (e.g., print news), which studies how mental illness stigma results individually from traditional media exposure (Budenz et al., 2018). Social media is differentiated from traditional news media; however, it can include news coverage and simultaneous discussions, communication, and responses to current events (Budenz et al., 2018; Robinson et al., 2019). Many news media outlets and companies have shifted to publishing stories online on social media platforms (e.g., Twitter, Facebook, etc.) in order to publish stories more quickly while providing information in real-time about current events (Budenz et al., 2018; Robinson et al., 2019). It was noted that social media and online news publishing differ from traditional news media due to its ability to reach, produce, and interact with information in farther-

reaching geographic areas (Budenz et al., 2018).

Schildkraut and Elsass (2016) noted that one critical shift in the perceptions of mass shootings is the introduction of social media. This ability to reach farther geographic areas can amplify or intensify mental illness stigma by reaching a farther audience than traditional media sources (Budenz et al., 2018). Social media was more likely to be used by the general population, which can result in data regarding mental illness stigma and exposure for individuals with mental illness to view stigmatizing language on social media platforms following mass shootings (Budenz et al., 2018; Robinson et al., 2019). There was a lack of research regarding how the social media site in question (e.g., Facebook, Twitter, Reddit, etc.) affected the potential spread of mental illness stigma. Researchers have been utilizing Twitter to further investigate data, such as stigmatizing messages about schizophrenia and depression (Budenz et al., 2018; Hoffner et al., 2017). In the United States, the general public was found to trust their local media news sources, which frequently overrepresent violent crime in their coverage areas (Budenz et al., 2018). These overrepresented stories of violent crime in local coverage areas can influence levels of fear from local residents and viewers (Budenz et al., 2018; Robinson et al., 2019; Swanson et al., 2015).

In Budenz et al.'s (2018) study, they investigated how mental illness stigmatizing messages on Twitter would occur following a mass shooting event; their investigation attempted to compare two locations to assess if mental illness stigma about a mass shooting event was confined to a specific geographic area where the shooting occurred or if it reached farther geographic areas than the occurrence. Budenz et al. (2018) noted that

there was no prior research about mental illness-related tweet analysis, and can provide additional data regarding messaging and communication on Twitter about the mental illness stigma topic. Public tweets were coded about the mass shooting event, including messages about violence-related mental illness stigma and tweets about dangerousness and violence connected to mental illness (Budenz et al., 2018).

Tweets included were original and excluded retweets that were published immediately following the shooting; a total of 3,305,686 mental illness-related tweets were collected, between December 23, 2016, and January 20, 2017, around the Fort Lauderdale Airport shooting, which occurred on January 6, 2017 (Budenz et al., 2018). Of those tweets, 30% included mental illness stigma, with Florida at 31.7% and Virginia at 28.0% (Budenz et al., 2018). Within both states, one particular day had the largest proportion of tweets (e.g., 44.4% in Florida and 45.9% in Virginia) on January 20, 2017, which was the United States presidential inauguration; it was found there was a political context for the increase in stigmatizing messaging that day (Budenz et al., 2018). Additionally, one day after the shooting, on January 7, 2017, there was an increase in mental illness stigmatizing messages in Florida between 38% to 40.7% and in Virginia, 29.7% to 37% (Budenz et al., 2018). This elevation, the following day of the shooting, demonstrated the highest volume of mental illness stigmatizing messages regarding violence during the study period (Budenz et al., 2018).

Based on Budenz et al.'s (2018) findings, there was significant data supporting violence-related mental illness stigma on Twitter in both geographic areas, Florida and Virginia, following the Fort Lauderdale Airport shooting, which demonstrated this may

be a common occurrence following a mass shooting event and that stigmatizing mental illness stigma messages are reaching a farther geographic area than the location of the shooting. Additionally, other factors may have influenced mental illness stigma messages related to violence that were not analyzed, such as Twitter's platform tools, such as retweeting ideas to increase visibility and political components (Budenz et al., 2018). There were trends for Twitter responses to emergency events, where individuals who respond locally focus on information specific to the event, while those outside the geographic location of the event discuss the more newsworthy aspects of the news story (Budenz et al., 2018). By this, the influences of local media on the mass shooting event may have accounted for increases in mental illness stigma messaging more so than the geographic proximity itself (Budenz et al., 2018). Coverage and information shared in relation to geographic proximity to the shooting reached far beyond the anticipated geographic location and influenced mental illness stigma due to social media access (Budenz et al., 2018; Robinson et al., 2019).

It was argued that this mental illness stigma relating to violence was a major source of discrimination, and these messages on social media increase following a mass shooting, regardless of geographic location, through being distributed to farther and wider audiences with an increased probability of endorsement (Budenz et al., 2018). Jones et al. (2016) conducted three case studies on Twitter in which three traumatic, violent college campus events occurred, the negative emotion expressed after each event was gauged with timeframes examined, and replications of results were conducted in the second and third studies. In all three studies, there was support for finding event-related

negative emotion expressed on Twitter, which supported Jones et al.'s (2016) hypotheses, where said negative emotion was shared across these violent events and Twitter users. Budenz et al. (2018) also found that social media communication following a mass shooting was similar in comparison to traditional news media coverage in linking violence to mental illness; this demonstrated that both social media and traditional media are two influential sources for public responses to mass shootings and mental illness, with implications of public response to mental illness.

Information regarding mass shootings predominantly came from media sources, which argued that social media may be a method for users to find alternatives to news story narratives and can contribute to social media conversations (Budenz et al., 2018). Social media has been credited with contributing to social change through publicly shared expression, raising awareness, and inciting change (Budenz et al., 2018). Mental illness stigma relating to violence reached beyond local geographical boundaries and proximities of the shooting through retweeting stigmatizing tweets (Budenz et al., 2018). It was also argued by Budenz et al. (2018) that the more frequently that social media users or the general public are exposed to stigmatizing mental illness portrayals, the more likely they are to use these concepts, associations, or beliefs when viewing a mass shooting event.

### **Public Perception**

Stories reflected in media often shape public opinion and discourse regarding mass shootings, such as speculations about the offender's mental illness and reinforcing good versus evil (Schildkraut et al., 2018). In 2006, 60% of Americans believed an individual with schizophrenia was likely to act violently, while 32% thought similarly

that someone with major depression would act violently (Harvard Health Publishing, 2011). Over the course of several decades, individuals were more prone to associate mental illness in association with violence, despite improvements in the public's understanding of mental illness (Pescosolido et al., 2019; Rueve & Welton, 2008). Public views of mental health were frequently influenced by stories of violence, including mass shooting stories, the depictions of mental illness, and mental illness speculation can result in stigmatizing policies, laws, mandates, and discussions (Pescosolido et al., 2019; Skeem & Mulvey, 2019). Frequently, conjecture and claims were made that crime and violence within the United States are an epidemic, despite data that demonstrates these claims are inaccurate (Schildkraut & Elsass, 2016).

Based on the results of Pescosolido et al.'s (2019) study, public perception from participants regarding the likelihood of individuals being violent toward others was approximately 60% for schizophrenia and alcohol dependence, while it was 30% for major depression, and 20% for daily troubles. Other than for alcohol dependence, these figures were an increase, in 2018, from the previous survey, in 2006, for perceptions of dangerousness and support for coerced treatment for all four categories appeared to have increased (Pescosolido et al., 2019). There was evidence supporting the belief that dangerousness and mental illness are elevated within the United States than in other Western nations (Pescosolido et al., 2019). Due to attempting to establish the narrative of these shootings and understand the reason why the mass shootings occurred, issues such as mental health were inserted and discussed through media, academics, politics, and the public (Schildkraut & Elsass, 2016).

The lay public's attitudes, opinions, and public perception in general guide how people act based that their beliefs and perceptions are true, which can affect how people react to individuals with mental illness; if the general public believed individuals with mental illness are violent or dangerous, there is a higher likelihood to support policies and laws targeting people with mental illness to combat threats to safety (Swanson et al., 2015). Media focused on social factors contributing to mass shootings like bullying and harassment, media violence, substance abuse, parental neglect, child abuse, community factors, school factors, and so forth have all been attributed or suggested for causes of mass shootings but have failed to recognize these reasons fail to account for mass shootings being largely perpetrated by males (Schildkraut et al., 2018). The perceptions of dangerousness involved from media portrayals of dangerousness and violence from individuals with mental illness can influence public perceptions, policies proposed, and potential laws targeting individuals with mental illness (Budenz et al., 2018). Given the statistically low occurrence rate for mass shootings, most perspectives were shaped by news media, which affects public perceptions (Schildkraut et al., 2018).

Public perception of mental illness and violence was commonly associated due to conflating mental illness with dangerousness and violence, which produces stigma associations (Varshney et al., 2016). This public perception has been prolonged due to media speculations and violence sensationalism, associating that the offenders of violent crimes, including mass shootings, are perpetrated by individuals with mental illness (Rueve & Welton, 2008; Varshney et al., 2016). The perpetuation that mental illness is related to violence is frequently featured or related in news stories; the stigma associated

with news stories discussing mental illness and violence further shares societal biases and stigma for individuals diagnosed with a mental illness (Varshney et al., 2016). With societal biases and stigma toward individuals with mental illness, the potential for harm can be found through decreased efforts to seek treatment and disclose issues with mental illness, discrimination against individuals with mental illness, and the resulting targeted policies and laws (Rueve & Welton, 2008; Varshney et al., 2016). Mental illness and violence associations have received more extensive discussions, attention, and publicity, which have sparked debate and arguments regarding mental illness (Varshney et al., 2016).

### ***Media Influence***

Due to media news reports connecting violent acts to mental illness as a causal link, the general public perceives that individuals with mental illness have a higher capacity for violence (Chan & Yanos, 2018). In an American public poll, the findings presented that a little less than half the population (41.5%) feared random mass shootings, while similarly, a little less than half the population (43.8%) feared terrorist attacks (Pescosolido et al., 2019). Chan and Yanos's (2018) study found significant support that participants were primed regarding mental illness and beliefs that there was violence inferred from news reports. Mental illness was frequently portrayed in media and entertainment with inaccuracies, negative attributes, associations of violence or dangerousness, and social strain in communities (Chan & Yanos, 2018; Pescosolido et al., 2019; Swanson et al., 2015). These indications and biases presented in the media can strongly contribute to stigma; stigma in this instance is described as stereotypes regarding

the target group, individuals with mental illness, that can cause stress and hardships based on differing types of stigma (Budenz et al., 2018; Chan & Yanos, 2018).

Bias in news and entertainment media can influence public beliefs that severe mental illness is associated with violence likelihoods despite evidence that 3% of individuals with severe mental illness are violent (Chan & Yanos, 2018; Knoll & Annas, 2016). The general public, particularly individuals without prior knowledge of mental illness or who have denied personally knowing an individual with mental illness were more likely to believe individuals with mental illness are prone to engage in violent or dangerous behavior, as well as increased primed attention toward media mentioning mental illness in news stories (Chan & Yanos, 2018; Rueve & Welton, 2008). Media news stories have the potential to prime consumers of the information by mentioning the history of mental illness or speculating that mental illness has a role in the news stories, which could play a role in perpetuating negative stereotypes, stigma, or bias regarding mental illness (Chan & Yanos, 2018).

Reavley et al. (2016) assessed associations of dangerousness with mental illness based on exposure to media reports of violence, as well as negative personal experiences (e.g., fear, threats, or harm). Media reports demonstrated substantially there is a greater link to discussing mental illness in the context of dangerousness and violence, rather than aspects of treatment, recovery, or advocacy (Reavley et al., 2016). While Reavley et al. (2016) did not find support that media stories did not directly predict participants' beliefs about dangerousness with mental illness, there was evidence of beliefs about dangerousness before and after violent events.

Additionally, news and entertainment media frequently made assumptions or draw conclusions, such as associating mental illness with violence; even when not directly stated, news stories would make inferences or jump to conclusions regarding the mass shooter's state of mind or potential mental illness diagnosis (Skeem & Mulvey, 2019). "There is little compelling evidence that mental illness causes mass shootings or that policy initiatives focused on mental illness will have a significant impact on these crimes" (Skeem & Mulvey, 2019, p. 87). Rather, Skeem and Mulvey (2019) noted that other causal factors (e.g., emotional distress, anger, suspiciousness, indifference to life) frequently describe perpetrators of mass violence that differ from the noted emotional distress and an individual with mental illness.

In their investigation, McGinty et al. (2013) investigated how news coverage affected the public's views and attitudes toward serious mental illness and gun control toward this group through a randomized national sample survey of 1,797 respondents. The results of McGinty et al.'s (2013) study compared three experimental groups and one control group that were given three different stories. McGinty et al. (2013) reported that the story about a mass shooting raised respondents' negative attitudes toward individuals with serious mental illness and elevated support for gun restrictions for this group.

Mass shootings by individuals who have serious mental illness are shown by news media in ways that influence negative attitudes toward serious mental illness and support for gun control policies (McGinty et al., 2013). From their study, the experimental group's three news stories described mass shooting events that evoked concerns of dangerousness from persons with serious mental illness, and respondents showed an

increase in supporting social distancing from individuals with serious mental illness, firearm restrictions, and banning large capacity magazines (McGinty et al., 2013). Due to the nature of news stories following mass shooting events in which the shooter was described with serious mental illness, their history, and their actions during the shooting, the lay public's perceptions of the shooting portrayals appeared to contribute to negative attitudes toward individuals with serious mental illness (McGinty et al., 2013).

Hammarlund et al. (2020) investigated how negative media portrayals of mental illness may contribute to harmful public stigma, particularly following the shift from traditional media to online sources. In their present study, language was analyzed through use and coverage choices within 811 online articles about mass shootings relating to the shooter's mental illness status (Hammarlund et al., 2020). Due to the nature and unknown factors behind mass shootings, including motive, the general public and media speculated about the shooter's mental health (Hammarlund et al., 2020). Despite statistically low recorded violence among individuals with mental illness, the general public has been found to associate mental illness with violence and erratic behavior, which frequently can cause treatment of these individuals as an outgroup (Hammarlund et al., 2020). These negative media associations can be used through cultural beliefs of mental illness by the public as influences on mental illness stereotypes (Hammarlund et al., 2020).

Despite mass shootings' causes typically having multiple complex factors, news media typically speculated oversimplified explanations that the perpetrator is mad or bad, which influences public perception (Knoll & Annas, 2016). Hoffner et al. (2017) studied the perceived influences of news coverage on attitudes regarding mental illness and

behavior outcomes following the Virginia Tech shooting with an online survey to gauge responses on mental illness. Respondents, particularly those without prior experience with individuals with mental illness, demonstrated predictions that the news had an influence on the respondent but not regarding others (Hoffner et al., 2017).

Individuals with no prior mental illness experience found the news to influence their own opinions and attitudes toward individuals with mental illness as supportive, but conversely, individuals with mental illness believed that others' attitudes regarding mental illness were more negative, with less perceived support (Hoffner et al., 2017). Due to perceptions gained from news influences, individuals were less likely to disclose their mental illness, treatment, or willingness to seek treatment (Hoffner et al., 2017). Following mass shootings, speculation about the shooter's mental health status was questioned and became the focus of news coverage and public speculation in order to understand or make sense of the mass shooting event (Hoffner et al., 2017).

Given inaccuracies portrayed in news media of mental illness and potential negative connotations, individuals with mental illness were potentially portrayed as dangerous, violent, or unpredictable; this likewise creates the opposite portrayal that individuals who are dangerous or commit violent crimes are presumed to have a mental illness and can perpetuate public stigma (Hoffner et al., 2017). While the news consumers' own experiences with mental illness were likely to influence and affect how they interpret the news depictions, people's beliefs, attitudes, and opinions of mental illness can influence or impact their understanding of mental illness (Hoffner et al., 2017). Social groups and identities have been increasingly reviewed in recent years for

perceived media influences; media images and portrayals can mediate cues regarding social identities, which affect social groups and responses to mental illness (Hoffner et al., 2017). Individuals' experience with mental illness, both through personal and family experience, affects their understanding of media depictions of mental illness; without that prior understanding or experience, individuals can infer, confirm, and reinforce attitudes, behaviors, and biases about mental illness through portrayals in the media including concepts of dangerousness and violence (Hoffner et al., 2017).

Negative portrayals in media have the potential of a greater influence when there is a group outside their views, particularly of groups they are familiar with, and negative media images can affect both those within the mental illness group and outside it as well (Hoffner et al., 2017; Robinson et al., 2019; Rueve & Welton, 2008). Said negative images can also affect ingroup views by making people within that group feel vulnerable and influencing emotional responses (Hoffner et al., 2017; Jackson et al., 2009). Media influences on groups that have little or no experience with mental illness, when mental illness was featured in media, can lead to misunderstanding of violence or dangerousness, while experience with mental illness can minimize these beliefs (Hoffner et al., 2017; Jackson et al., 2009). Indirect effects of presumed media influences can affect how people regard media based on how they perceive those affected and therefore can have societal consequences through beliefs and expectations (Hoffner et al., 2017).

With the potential that media affects social norms, public opinion, or beliefs, negative media images of mental illness as a group can cause feelings of fear, vulnerability, feeling stigmatized, and behaviors such as avoidance or withdrawal

(Hoffner et al., 2017; Pescosolido et al., 2019; Reavley et al., 2016). Regardless of the accuracy of media, people's perceptions of said media, or feelings, the perceptions of these effects have the potential for widespread effects (Budenz et al., 2018; Hoffner et al., 2017). Due to tragic news and its upsetting nature, social sharing, particularly on social media, involves communicating with others about the event and their own feelings (Hoffner et al., 2017). Given these tragic or upsetting events, sharing information and opinions with others through social media has become more common as a public response to sharing emotions, opinions, attitudes, and consolation (Budenz et al., 2018; Hoffner et al., 2017).

This study discovered that experience with mental illness had a key position on attitude influences of mental illness and perceptions from the news; fear played a significant role, particularly with individuals with no experience with mental illness (Hoffner et al., 2017). Hoffner et al. (2017) determined through their findings that the respondents' experience with mental illness affected how they perceived people's beliefs of news perpetuating mental illness stigma and susceptibility of others. Regarding online posts, the group of respondents with little to no experience with mental illness was more likely to share their negative views online due to fear of motivating self-protection (Hoffner et al., 2017). Due to negative social sanctions and cues in conversations in person that may not readily be apparent online, there may be a lack of dissuading cues online, which could potentially increase public stigma of mental illness relating to mass shootings (Hoffner et al., 2017). In regards to self-stigmatizing, news coverage can impact audience members from disclosing treatment or refraining from seeking treatment

and social support due to expectations of negative reactions (Hoffner et al., 2017).

Due to the rapidly changing media environment due to social media, the influences of media exposure regarding mass violence can cause distress to media consumers (Felix et al., 2020). Given the ability to capture mass violence events with graphic live footage from devices such as cell phones, traumatic and graphic footage of the event can be broadcast on both traditional and social media (Felix et al., 2020; Schildkraut et al., 2018). Examining extensive media coverage of mass violence events, the impacts reach farther geographic areas than where the event occurred (Felix et al., 2020). Over the course of the past decade, media exposure and technological advances have changed how these events are viewed (Felix et al., 2020). Given that most individuals do not encounter or experience a traumatic event such as mass violence, it is often relied upon through media coverage (Felix et al., 2020; Schildkraut et al., 2018).

Regardless of whether the media consumer was actively seeking coverage while viewing traditional or social media, there is a potential for distressing exposure (Felix et al., 2020). Social and traditional media often capture extensive public attention and coverage regarding mass shootings (Croitoru et al., 2020). In recent years, within the United States, social media networks have surpassed traditional print news as a source of news; traditional news sources have shifted to news websites and apps, and also utilize social media to reach wider audiences (Croitoru et al., 2020; Felix et al., 2020). With this shift, mass shooting events have become a focused topic of public engagement and digital activism, as well as providing context for consumers seeking extensive information on the topic (Croitoru et al., 2020; Felix et al., 2020; Schildkraut et al., 2018).

Mass shooting factors covered in news media were investigated, with the findings determining that it depends on the characteristics of the event; likewise, concerns for extensive media coverage when featured raised concerns for potential imitating or copycat violent behaviors (Croitoru et al., 2020; Schildkraut et al., 2018). Given that over time, society has become more hyper-engaged, including accessing, contributing, and discussing news, mass shootings have become a widely addressed issue that has grown in focus over the course of the past few decades (Croitoru et al., 2020). According to Google Trends, mass shootings peak public interest most within the first 24 to 48 hours, with waning interest over 10 days following (Croitoru et al., 2020). Social media differs from traditional news sources when addressing mass shootings; these concepts began in public but provide a different context to online discussions, and social media posts are not linear like presentations of mass shootings through traditional media (Croitoru et al., 2020). Jose et al. (2021) found that media coverage of mass shootings appeared to have a significant impact on shaping public attitudes toward gun violence, particularly with the media exposure of greater than one hour shaping individual attitudes toward preventative gun policy measures and efforts.

News media portrayals of mass violence and mental illness were examined with how the media frames the offender based on their race; Duxbury et al.'s (2018) study found there is a difference in how the media examines, discusses, and blames mass shooters based on their race. Moral panics are a frequent public concern as social problems give rise to crime; news coverage has been recognized as a key component for moral panics regarding crime (Duxbury et al., 2018). Blame was typically assigned to

these moral panics and can serve as justification to marginalize certain groups; while mass shootings are not a common occurrence, they have generated moral panic that targets mental illness as a factor (Duxbury et al., 2018). Mass shootings fall within a moral panic category, given the societal speculations of why the shooter perpetrated the shooting and presumptions of the shooter's mental illness; there is a cultural component to the sensational events and attention given to mass shootings and mental illness (Duxbury et al., 2018). In Reavley et al.'s (2016) study, knowing someone with a mental illness diagnosis or having a higher level of education was more strongly associated with lower beliefs of dangerousness.

### ***Mental Illness Stigma through Perceptions***

Influences of individual differences, cognition, attitudes, and beliefs about mental illness also have the potential to moderate or impact stigma and stereotypes regarding individuals with mental illness (Chan & Yanos, 2018). Chan and Yanos (2018) noted through their study's findings that a layperson in the general public may not necessarily support negative attitudes regarding mental illness but may be susceptible to external influences through media that can relate to stereotypical beliefs, bias, or stigma regarding individuals with mental illness. It was also determined from Reavley et al.'s (2016) study that certain diagnoses, such as schizophrenia, had a lower occurrence rate, and were less likely to have exposure to participants or the general public to influence perceptions; this was potentially part of the contributing factor to elevated beliefs of dangerousness or violence.

Stigmatizing associations of criminals, evil, and mental illness were being made

widespread with the lay public, media, and society linking these factors (Knoll & Annas, 2016; Swanson et al., 2015). Stigmatization of people with mental illness was frequently reinforced through common but mistaken beliefs, fear, anxiety, and expectations to find clear and fast solutions (Knoll & Annas, 2016). Due to the deinstitutionalization of psychiatric illnesses, there was a societal belief and misconception that individuals with mental illness have the capacity to become violent (Knoll & Annas, 2016). Research from 1950 to 1996 demonstrated comparatively that people's perceptions of individuals with mental illness as violent or fearsome have increased over time rather than decreased (Knoll & Annas, 2016).

### ***Political Ideologies***

Political debates also elevated public responses regarding these concerns of danger and violence, some of which have fueled debate over the dangerousness of individuals with mental illness (Pescosolido et al., 2019). Despite these debates on mental illness and violence, there has been little evidence supporting associations between the two (Pescosolido et al., 2019). Arguments of mental illness linked to mass shootings were largely supported by the National Rifle Association, which lobbied that access to guns was not the issue but the United States' mental health system (Skeem & Mulvey, 2019). A cyclical argument, or tautology, explaining the belief that mental illness causes violence because the perpetrator is mentally ill was proposed; approximately 1,000 Americans were polled and 63% believed public mass shootings were the result of mental illness as opposed to 23% believing it was inadequate gun control (Skeem & Mulvey, 2019). Sargent and Newman (2021) investigated, within three studies, mental illness

stigma and gun attitudes among college students in the United States, and determined that respondents with pro-gun attitudes had a more negative response toward people with mental illness.

McGinty et al. (2013) conducted a study to assess how the aftermath of mass shootings affects negative perceptions and attitudes of individuals with serious mental illness while discussing gun control policies; when arguments and support for gun control in the United States have been discussed, frequently there have been comparisons to mass shootings perpetrators with serious mental illness, as well as broad news media coverage. When a gun restriction policy was included in one of the experimental groups was not found to increase negative attitudes toward individuals with serious mental illness or further support for restrictions (McGinty et al., 2013). Following several high casualties and highly publicized mass shootings, gun control policies were discussed in order to limit individuals with serious mental illness from possessing firearms and ban high-capacity magazines due to beliefs that this group has a higher propensity for dangerousness (McGinty et al., 2013). Prior to these discussions, there already existed federal laws prohibiting individuals who have been in psychiatric care on an involuntary commitment status or determined legally to be mentally incompetent (McGinty et al., 2013).

While many firearm laws and policies vary by state, there were arguments for further expanded prohibitions on firearms in order to restrict individuals with serious mental illness, which is particularly popular following mass violent events that are highly publicized (McGinty et al., 2013). Due to the stigmatizing nature of these blanket policies

on persons with serious mental illness, both medical and public health communities argued that these initiatives can be harmful without specifically addressing the underlying causes of mass shootings and gun violence (McGinty et al., 2013). In 2012, following the Sandy Hook school shooting, a significant push politically in the United States began to remove firearm access from individuals with mental illness, particularly by the National Rifle Association (NRA) (Knoll & Annas, 2016).

Following mass shooting events, news stories run stories extensively, including arguments for gun control policies, which expose the public news consumers to stories that can lead to negative public attitudes toward individuals with severe mental illness (McGinty et al., 2013). Mass shootings have become highly publicized, with a focus on the link between gun violence and mental illness to discuss how to prevent future mass shootings; this was argued to be oversimplified and unlikely to produce practical solutions for prevention (Knoll & Annas, 2016). Knoll and Annas (2016) stated that laws and policies should focus, instead of on broad categories of mental illness, on behaviors and risks attributed to potentially committing gun violence.

### ***Personal Beliefs***

Attitudes, biases, and personal beliefs are particularly complex factors in how mass shootings are perceived by members of the general public. Vasturia et al. (2018) studied how participant's beliefs in greater evil affected how they viewed punishment toward criminals even if said criminals did not demonstrate what was stereotyped as evil; results confirmed the hypothesis that individuals who believed in greater evil were more likely to endorse dehumanizing and demonizing views toward the criminal and support

punishments. In Vasturia et al.'s (2018) study, beliefs in greater evil increased the likelihood that the participant endorsed a harsh punishment toward the perpetrator in a mass shooting, regardless of whether the offender had mediating characteristics that may affect their actions, and participants endorsed feeling more retributive in selecting the harsher punishments. Anestis and Daruwala (2021) found that the tendency to blame gun violence on mental illness can affect evidence-based prevention strategies regarding firearms due to inaccurate beliefs in attributing gun violence to mental illness as opposed to shifting the focus to more accurate gun violence prevention. Anestic and Daruwala (2021) found that, through both their samples, gun violence, even relating to suicide and firearm preventative practices, were less favored as many of the participants believed firearm prevention practices would not stop suicide attempts.

While arguably over recent decades, there has been a decrease in mental illness stigma, stigmatizing attitudes regarding persons with serious mental illness were assessed to determine if there has been an increase or if it has remained the same (McGinty et al., 2013). At the time of this study, it was not determined how the relationship between news coverage following violence by persons with serious mental illness and public attitudes is interrelated using an experimental method (McGinty et al., 2013). Within their study, McGinty et al. (2013) wanted to examine the issues of gun control policy support, attitudes toward individuals with severe mental illness, and influences from news stories. Participants were randomly assigned to a group where they read one of three new stories, and a fourth group was the control group, which had no exposure (McGinty et al., 2013).

The three stories featured one in which there was a mass shooting event by an

individual with severe mental illness and a large capacity magazine firearm, the second story featuring the same as the first but with a gun restriction policy proposed, and the final as the same mass shooting event and proposing to ban large capacity magazines (McGinty et al., 2013). McGinty et al. (2013) conducted their study in this manner to determine how news media portrayals of the event can affect public attitudes toward serious mental illness and gun control policies. Participants of the study were given instructions to read the story and respond to how the news stories may have influenced their attitudes toward gun control policies and people with serious mental illness (McGinty et al., 2013).

The results found that 36% of respondents did not want to work with a person with a serious mental illness, 30% did not want a person with mental illness as a neighbor, 40% believed persons with mental illness were more dangerous than the general population, 71% of the control group supported gun restrictions for individuals with severe mental illness, and 48% supported banning large capacity magazines (McGinty et al., 2013). The results from all three stories demonstrated higher negative attitudes toward individuals with serious mental illness compared to the control group (McGinty et al., 2013). McGinty et al. (2013) confirmed their expectations from the study; the presented news stories to participants increased support for gun restrictions for individuals with serious mental illness when compared to the control group.

### ***Age & Gender Variables***

Notably, there was minimal research relating to the gap relating to perceptions of public mental illness stigma and mass shootings as predicted through factors such as

social media use, type of social media, age range, or gender. There was, however, research that has gathered demographics in their studies, notably age, and gender variables included in a broad range of research relatedly that contributes a further understanding to the variables examined. Felix et al. (2020) examined sex (male and female) as well as age, including participants from 14-59, in their study to examine measurement fit relating to media exposure to mass violence, while age is examined by Schildkraut et al. (2018) in the context of both perpetrators or mass shootings and public perceptions.

The variables examined, while they are examined in various studies related to mass shootings, public mental illness stigma, and social media, lack enough prior studies, and utilizing these variables in this study will further assist in examining the gap in the literature. Age will contribute to examining the differences among participants' responses, while gender can also contribute to examining differences in responses. Martingano et al. (2022) utilized and examined a participant pool of 1253 adults of varying ages while noting their gender as well. The average age, 27.6, and gender, 69.7% female, were noted for examining empathy, narcissism, and behaviors relating to social media, as well as including types of social media use (Martingano et al., 2022). It was noted that participants who used more types of social media scored higher with narcissistic traits, although there was no overall significant relationship between social media use and empathy (Martingano, 2022). By including these dependent variables, the information will be examined to further research the noted literature gap.

## Summary and Conclusions

In conclusion, mental illness has been widely discussed in the United States as a potential causal factor for mental illness despite research demonstrating most individuals with severe mental illness are not violent (Knoll & Annas, 2016; Pescosolido et al., 2019; Reavley et al., 2016; Schildkraut et al., 2018). Perceptions of dangerousness from society can have harmful and stigmatizing effects on individuals with mental illness, particularly with public, structural, and self-stigma (Chan & Yanos, 2018). These perceptions were publicized through news media, where mental illness is frequently speculated; societal fear and gun control debates further contributed to discussions of mental illness while trying to discern the causal factors of mass shootings (Chan & Yanos, 2018; Pescosolido et al., 2019; Schildkraut et al., 2018). Given societal fears of violence and public mass shootings prevalent through news media with speculations of mass shootings, stigma of mental illness can result in lower attempts for treatment, negative beliefs, unsubstantiated beliefs mental illness is dangerous, and public pressure for mandated treatments (Chan & Yanos, Pescosolido et al., 2019; Varshney et al., 2016).

Furthermore, social media, as a relatively new feature to communicate and share news, has the potential to influence public perspectives, given the variables of mass shootings and public mental illness stigma. The perceptions of mass shootings, public stigma of mental illness, and news media were potentially affected by social media influences and require further research based on the current research available. There was also a lack of research regarding where the type of social media (e.g., Facebook, Twitter, Reddit, etc.) has an impact on influencing perceptions of mass shootings and public

mental illness stigma. Given the prevalence of mass shootings in the United States and recent shootings, in which mass shootings are becoming deadlier, as well as societal attributions of mental illness as perceived causes for mass shootings, there was a gap in how these perceptions, particularly with social media may have an impact on public mental illness stigma. In the following chapter, the research methodology regarding these variables was examined.

### Chapter 3: Research Method

Mental illness, as a prominent topic in the United States, has raised conversations about stigma and violence, particularly with media coverage and societal implications of violence by people with mental illness. Mental illness stigmas have been found to be harmful to individuals with mental illness; however, a popular and pervasive belief has arisen implying a relationship between violence and mental illness, including mass shootings. Associations of mental illness and mass shootings, such as through news stories, are speculated to have an influence on these associations, which could contribute to negative self-, public, and structural stigmas of mental illness. Given the popularity and relatively new phenomenon of social media, the following study was conducted to determine if social media influence the perception of mass shootings and public mental illness stigma.

The purpose of this chapter was to describe the proposed research methodology for this quantitative correlational study using regression analysis regarding social use and public mental illness stigma relating to perceptions of mass shootings through the theoretical framework of social identity and intergroup behavior. This approach attempted to measure the effects social media will influence public perceptions of mass shootings and mental illness stigmas through a correlational quantitative research methodology using regression analysis. There was limited research on social media use, particularly in relation to mass shootings and mental illness. This approach, a correlational study using regression analysis, allowed for an understanding of potential predictors between these variables that can further understand if social media use and

public mental illness stigma have any substantial effect on the public regarding perceptions of mass shootings. In the following chapter, research design, rationale, and methodology are examined for the study, including aspects of population, sampling and sampling procedures, and procedures for recruitment, participation, and data collection.

### **Research Design and Rationale**

This study is a quantitative correlational study using regression analysis. The following research questions were utilized in the study:

RQ 1: Is social media use significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

*H<sub>0</sub>1*: Social media use is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a</sub>1*: Social media use is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 2: Is type of social media significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

*H<sub>0</sub>2*: Type of social media is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a</sub>2*: Type of social media is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 3: Age range is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>0</sub>3*: Age range is not significantly predicted by perceptions of mass shootings

and mental illness stigma when controlling for all other variables.

*H<sub>a3</sub>*: Age range is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 4: Is gender significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

*H<sub>04</sub>*: Gender is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

*H<sub>a4</sub>*: Gender is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

This study measured regressions between perceptions of mass shootings, public stigmatizations and perceptions of mental illness, and social media use of perceptions of these variables. Regressions between the variables of mass shootings, mental illness stigma, demographics, and social media were investigated to determine if there is a relationship between the variables. The correlational study was selected to examine the relationships of the variables of said variables by the researcher.

The design choice, a correlational survey design using regression analysis, was believed to be beneficial for advancing knowledge in this discipline due to a potentially larger sample size of participants online, generalizability, and will align effectively with accessing participants who may or may not be familiar with social media use. The design choice also lent to examining the relationships between variables from the questionnaire responses, which was among the several reasons why a qualitative method was not selected. The quantitative design was selected for the purpose of analyzing anonymous

regression data and to gather the data as opposed to other methodologies such as a qualitative method.

The selection for an online survey appeared the most appropriate for the selected methodology and data collection. This online survey was also selected to minimize the risk of in-person interactions due to ongoing COVID-19 infection rates. Using the survey method, the geographic reach spanned further and contributed to advancing knowledge in this discipline by providing data regarding the hypotheses. The choice for quantitative method over qualitative was selected in order to have a large, repeatable, objective study that will be structured, reliable, and generalizable, as well as fast to collect and analyze (Field, 2013; Warner, 2013).

### **Correlational Method Using Regression Analysis**

The correlational method using regression analysis was used to investigate if there are predictors between the variables of the study observed by the researcher through data gathered in the survey (Field, 2013; Warner, 2013). The variables were investigated, with independent variables being perceptions of mass shootings and mental illness stigma, while social media use, type of social media, age range, and gender, will be the dependent variables to measure said predictors (Field, 2013; Warner, 2013). The strength or lack thereof of the relationships was examined where the variables can be examined with limited manipulation or control by the research to achieve a higher level of external validity (Field, 2013; Warner, 2013). Following the collection of data from the survey, the regression analysis was conducted via SPSS.

## **Methodology**

### **Population**

The participants were drawn from a convenient sample of online adult respondents restricted to users within the U.S. population of social media users. With an online survey, responses were collected from individuals from Walden University and available participants through sharing survey links on social media or the host of the survey, SurveyMonkey. An estimated sample size, using G\*Power, for a linear multiple regression analysis a priori with the estimation of a probability of 95% interval, in calculating a desired effect size of at least 80% (0.15), was sought to be at least approximately 146 participants (Faul et al., 2009; Warner, 2013).

### **Sampling and Sampling Procedures**

The sampling was a convenient sampling technique. Participants were recruited through Walden University, the website the survey will be hosted through, and through social media distribution. Convenience sampling has noted limitations, however, as it does not reflect the population as a whole. Due to the difficulties of finding a population that matches the proportions of the population, the convenience sample was determined as the sampling type. Aside from research that would be accessible to Walden University students, the survey website, SurveyMonkey allowed users to share their survey on the site for community members to access the survey, and distribution on social media would be completed through an account created specifically for the purpose of distributing the study links.

The sampling frame for inclusion and exclusion included some factors.

Specifically, participants were excluded if they were outside of the United States and if they were under the age of 18 years old. There was a 1-year residence requirement for survey participants living in the United States. As noted, the necessary sample size for a power of 0.95 was 146, with the basis of a 95% interval alpha level and effect size of .80. The interval and effect size were selected due to the interval minimizing the potential to make errors in accepting the hypotheses, while the effect size was selected as a large effect size approximately (Faul et al., 2009; Warner, 2013). In this estimation of the sample size, a higher number of participants was attempted to reduce the potential sampling errors (Warner, 2013).

### **Procedures for Recruitment, Participation, and Data Collection**

Recruitment and participation were utilized through the survey website, social media, and the Walden University participant pool in order to reach the necessary sample size. Participants were required to have access to a computer as well as a level of computer literacy necessary to access and complete the survey. Data were collected through the survey website SurveyMonkey.com where the data were organized through the site's features. The approach for gathering participants was planned for the survey to be distributed on SurveyMonkey.com, as well as links on Walden University's participant pool, and links distributed through a social media account created for the purpose of sharing the survey on popular social media (e.g., Facebook, Twitter, Reddit, etc.) to promote in groups and threads. Data were then extracted from the website to Microsoft Excel and SPSS to run analyses. There was a total of 53 questions that will take approximately 10-20 minutes. Brief demographic information was included in the

survey to gather information about participants without disrupting anonymity, collecting participants' age range, gender, race, and their social media use and websites endorsed.

Participants were provided informed consent before the study. Prior to starting the study, participants were informed that they would be responding to a survey regarding mass shootings, mental illness, and social media during their initial invitation to participate (Appendix). Prior to beginning the survey, informed consent was obtained and included a brief paragraph about what will be asked of the participants, their perspective time commitment in completing it, their rights, and both the benefits and risks of the study. Participants were warned that while the survey will not have any questions graphic in nature, there will be questions requesting consideration about mass shootings. Information was provided for further questions and should there be any distress from the study, including contact information for the National Crisis Hotline along with the researcher's information. Participants were not required for any follow-up procedures or requirements following the survey.

### **Instrumentation and Operationalization of Constructs**

The study comprised of demographic questions and four measures: the Internalized Stigma of Mental Illness Inventory-10 (ISMII-10), the Media Exposure to Acute Mass Violence Scale, the Public Stigma Scale, and the Social Media Users' Perceptions of News Agency Content Sites Online Survey (Boyd et al., 2014; Felix et al., 2020; Lim, 2016; Pryor et al., 2012). All four measures were located on APA PsycTESTS located through the Walden University library and have permissions stating the measures can be used for educational activities with controlled distribution for the

purpose of the educational research activity only. In the case of the Social Media Users' Perceptions of News Agency Content Sites Online Survey, there is a specific section of questions that are specific to a localized news agency that will be modified so there are no region-specific questions included in the survey. With the survey questions included, it was approximated to take 10-20 minutes and resources are limited to computer access with this design choice. All of these measures were appropriate to the current study with relevant questions and with the exception of the specific localized questions in one scale, all questions can be included on the SurveyMonkey.com questionnaire under the Advantage Annual Plan, which bills for \$32 per month.

Each scale measure published provided information for its reliability values, validity values, and populations for the measures. In Lim et al.'s Social Media User's Perceptions of News Agency Content Sites Online Survey (2016) scale, there were 19 items that used a 5- and 7-point scale identified through confirmatory factor analysis. The reliability of this scale, through Cronbach's alpha for the variables, ranged from .75 to .95, while the construct validity consisted of .75 to .95 and while the scale was 13 questions, six questions were excluded for specifically referencing a news agency localized to South Korea (Lim et al., 2016). This measurement will measure responses to social media use.

Pryor et al.'s (2012) Public Stigma Scale was an 18-item measure using a 5-point scale with no factor analysis or validity identified, however, the reliability was identified with a Cronbach's alpha of .83. The population of the survey was located in the Netherlands (Pryor et al., 2012). Boyd et al.'s (2014) Internalized Stigma of Mental

Illness Inventory-10 scale, which consisted of 10 items on a 4-point scale did not have a factor analysis identified but had a noted reliability alpha of .75 and a cross-validation sample with internal consistency reliability alpha of .81. The validity was noted to be similar to the longer version of this scale, which contains 29 items and retained a similar external validity (Boyd et al., 2014). The population of this study was located in the United States (Boyd et al., 2014). These scales were used to measure responses to mental illness stigma.

The final scale, Felix et al.'s (2020) Media Exposure to Acute Mass Violence Scale, was a 14-item scale with factor analysis and a population in the United States. The reliability alpha for this scale ranged from .69 to .92, while the validity was not identified for this scale (Felix et al., 2020). These scales were selected due to relevancy to the variables being examined and the instruments will be utilized to address the research questions and hypotheses. This scale was used to measure responses to mass violence, which includes mass shootings.

These scales were selected for the correlational quantitative study with regression analysis in order to examine the relationships between social media user perceptions, public stigma, internalized stigma of mental illness, and media exposure to mass violence that align with the variables noted of social media, mass shootings, and mental illness stigma. Demographic questions largely consist of nominal and ratio measurements, such as asking age ranges, gender, or what social media participants use, for example. Many of the scale questions among all four measures consist of ordinal measurements, where Likert scales are provided for responses (Boyd et al., 2014; Felix et al., 2020; Lim, 2016;

Pryor et al., 2012). However, Felix et al. (2020) also provided questions with ratio measurements as well as asked how many hours per day participants conducted certain news-related activities. These scales and questions were consistent with the correlational study design in examining relationships between the variables.

### **Data Analysis Plan**

The software used was SPSS, with the use of Microsoft Excel and the website SurveyMonkey.com, where the results will be pulled from. Per SurveyMonkey.com's features, data were directly extracted from the site to Microsoft Excel and SPSS for analyses. Participants and data were screened to exclude participants that are not over the age of 18 or reside in the United States and the data will be examined for outliers. Beyond this, the data were likely not to have anything further removed or adjusted for data cleaning or screening procedures. Any incomplete surveys were utilized for analysis to the degree the responses are completed, which includes if there is missing data, as participants were given the option to skip questions due to the sensitive nature. Mass shootings were also tracked during the time of the survey to determine if there was any potential relationship between mass shooting events and responses to the study.

The research questions and hypotheses are the following:

RQ 1: Is social media use significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

$H_0$ 1: Social media use is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_a$ 1: Social media use is significantly predicted by perceptions of mass shootings

and mental illness stigma when controlling for all other variables.

RQ 2: Is type of social media significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

$H_02$ : Type of social media is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_a2$ : Type of social media is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 3: Age range is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_03$ : Age range is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_a3$ : Age range is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

RQ 4: Is gender significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for other variables?

$H_04$ : Gender is not significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

$H_a4$ : Gender is significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for all other variables.

The analysis plan for the study consisted of regression analyses with the potential to run any further analysis if necessary (Field, 2013). The regression variables, confidence intervals, and any graphics were run and included as well, with the variables

consisting of mass shooting exposure perception and perceptions of mental illness stigma as the independent variables, and social media use, type of social media, age range, and gender, as the dependent variable (Field, 2013). Results were interpreted via SPSS for analysis of the data to determine if there was a positive or negative relationship between the variables (Field, 2013).

### **Threats to Validity**

Threats to internal and external validity were concerns to be addressed as much as possible. Regarding internal validity, there were no concerns with participants having social interactions, nor issues of maturation, or instrumentation (Field, 2013). While there was no specific participant selection, there were concerns for respondents or if there are unexpected events that may influence the outcome of the questionnaire, as well as participants not completing the questionnaire (Field, 2013). Concerns of external validity, such as sampling bias and the Hawthorne effect, were possible as well due to the nature of the questionnaire (Field, 2013). With internal validity, these threats were minimized by increasing randomization of the questionnaire, while external validity will attempt generalizability to settings, conditions, and populations as much as possible (Field, 2013). Threats to statistical conclusion validity were minimalized through utilizing SPSS while construct validity will be examined during analysis to see in a regression analysis how the measures compare (Field, 2013).

### **Ethical Procedures**

In regards to ethical procedures in this study, there were actions taken to ensure that the process protects participants. Participants consented to the study, which was

included at the beginning of the questionnaire where they can make informed consent and opt in or out, with opting out excluding them from participating in the study. The questionnaire was subjected to stringent IRB scrutiny to ensure the treatment of the participants met the necessary approval and permissions. The IRB approval number is #07-13-23-0973032. Participants were primarily recruited through SurveyMonkey.com with their informed consent addressed.

Data collection and participant involvement remained anonymous, with the exclusion of an IP address collected by SurveyMonkey.com to ensure duplicate surveys have not been completed and submitted. Survey results were shared with participants with a brief summary on SurveyMonkey.com when the survey had been completed, with an additional link shared in the consent form. Data remained anonymous and confidential during the study, with protections kept for this data, shared only among necessary individuals for the purpose of the dissertation, and stored securely through equipment and access points. All data were kept on a password-protected computer.

Results were shared on the survey host page, with a link shared on the informed consent page summarizing the results. All participants had access to this link. Data were stored securely and password-protected on a computer at all times, and data will be destroyed after five years, used only in the context of this research. Access to all data were limited to no outside parties and accounts, such as SurveyMonkey.com and social media for distributing the survey will only be accessible through the author, with safety precautions made to ensure the profiles are secure. It was also noted in the informed consent that the survey would contain minimal psychological risk, however, resources

were listed in the informed consent should participants become triggered during the survey. Participants were informed via the informed consent page that they could stop the survey at any time should they need to.

### **Summary**

In summary, this chapter consisted of how the study will be conducted and data handled to approach the research questions and hypotheses. The scales used were examined for utilization in the study and the procedures for how the study will be conducted were explained. Among the demographic and additional questions, there were four relevant scales determined to be used in the study, including the Internalized Stigma of Mental Illness Inventory-10 (ISMII-10), the Media Exposure to Acute Mass Violence Scale, Public Stigma Scale, and the Social Media Users' Perceptions of News Agency Content Sites Online Survey (Boyd et al., 2014; Felix et al., 2020; Lim, 2016; Pryor et al., 2012). Participants in the study consisted of adults above 18 within the United States and the questionnaire will be hosted on SurveyMonkey.com in order to better collect and analyze the data within SPSS with a quantitative correlational study with regression analysis. The design, methodology, rationale, and analysis plan were discussed thoroughly in order to approach data collection and analysis, which was conducted in the following chapters.

## Chapter 4: Results

Mental illness has continued to be a frequent topic of discussion in the United States, including media coverage relating to violence such as a mass shooting. Due to popular and repeated beliefs in media stories connecting mental illness with violence, mental illness stigma has the potential to be harmful to individuals with mental illness, as there is an implication in these media stories relating to mental illness and violence. Media, such as news stories or social media, may influence associations of mental illness and violence, such as mass shootings, which can potentially contribute to negative self-, public, and structural stigmas of mental illness. With the popularity of use with social media and limited research regarding it, the following study attempted to determine if social media and public mental illness stigma influence the perception of mass shootings.

This chapter covers the data and the data collection process for this quantitative correlational study using regression analysis regarding social media use and public mental illness stigma relating to perceptions of mass shootings through the theoretical framework of social identity and intergroup behavior. The research questions and hypotheses are examined relating to the data collected for the survey. A pilot study was not necessary for the study and a survey was conducted via SurveyMonkey. In the following chapter, data collection, treatment, and results will be examined for the study.

### **Data Collection**

Data were collected from the survey from November 8, 2023, to January 6, 2024. The study was approved by the IRB (# 07-13-23-0973032). Recruitment was performed through SurveyMonkey, social media, and Walden University's participant pool. A total

of 174 responses were collected from the survey. There were no discrepancies between the recruitment methods or data collection methods from the plan presented in Chapter 3.

All respondents indicated understanding to proceed with the survey given the instructions with the “I agree and wish to continue” prompt. Within this agree prompt, the respondents were informed about the option to select “Skip this question” when they did not want to indicate a response or if it did not apply. This included any questions presuming the respondent is diagnosed with a mental health diagnosis. All respondents were provided with IRB-approved consent forms before the survey began as well. Respondents were provided with information to inform them to opt out of the survey at any time, background information about the study.

### **Exclusionary Criteria**

Before noting the descriptive statistics, there were some necessary exclusion criteria implemented to the data, some of which were noted and predetermined in Chapter 3. Any respondents who skipped all questions and did not indicate they lived in the United States for at least 1-year or did not indicate they were 18 or older were excluded from the data. A total of eight responses out of 174 were excluded from the data set. Two responses were excluded for skipping the majority or every single question within the survey. Four responses were excluded from the data for indicating they did not live in the United States for at least 1-year or skipping this question. Two responses were excluded for skipping the question about their age range. These responses were excluded as previously mentioned criteria as well as to avoid skewing the results with outlier responses. The following section discussed the demographics from responses that were

included in the data.

### **Descriptives**

Some descriptive and demographic characteristics were collected from the sample. A total of 63 respondents identified as male, 99 respondents identified as female, six identified as nonbinary, one respondent identified as transgender, none of the respondents indicated “Gender Identity Not Listed/Other,” and five respondents indicated “Skip this question.” Of the respondents, 169 indicated they have lived within the United States for at least 1-year, while two indicated no, and three responded, “Skip this question,” which were also included in the exclusionary criteria Responses regarding age included 36 respondents indicating they were 18-29, 69 respondents indicated they were 30-41, 40 respondents indicated they were 42-53, 20 respondents indicated they were 54 - 65, six respondents indicated they were 66+, and three respondents indicated “Skip this question.” In response to respondents being asked, “To your knowledge, has there been a mass shooting this week?” Fifty-eight respondents indicated yes, 107 indicated no, and nine selected “Skip this question.”

The response rate was also recorded while noting when mass shootings were occurring to determine if there were any noted differences between time frames where a mass shooting occurred. According to [Gunviolencearchive.org](http://Gunviolencearchive.org) (n.d.), there were a total of 67 mass shooting events that occurred between November 8, 2023, and January 6, 2024, when the data were collected. While it was noted that the Gun Violence Archive stated four or more victims constituted a mass shooting, each event in which a shooting occurred with more than one person involved was recorded with said 67 shooting events

(Gunviolencearchive.org, n.d.; Silverstein, 2020). Of the 67 events that occurred, six total involved four or more victims: November 18, 2023, in Memphis, TN; November 26, 2023, in Los Angeles, CA; December 3, 2023, in both Dallas, TX and Vancouver, WA; and January 6, 2024, in Reedley, CA (Gunviolencearchive.org, n.d.).

The study, a random sample on SurveyMonkey, had a total of 166 responses not excluded. The sample was gathered on the basis of G\*Power with the total sample size requiring 146. The parameters of the sample size were selected due to relevance to the subject matter, limiting participants to legal adults within the United States and residents of the United States for approximately 1-year. That being said, there is still a constraint to the random sample size as the sampling is limited in regard to being proportionally representative.

The descriptive statistics were examined to further describe the sample. The descriptive statistics included mean and standard deviation for the dummy coded variables. The variables selected, Questions 2, 3, 4, 7, 17, and 36 best represented the hypotheses. Question 17 asked participants to rate “mentally ill people tend to be violent” to represent perceptions of mental illness stigma. Question 36 asked participants to rate how much media coverage about mass shootings made them feel mad and this was used to represent perceptions of mass shootings. The other variables were represented with the other questions: Question 2 (age), Question 3 (type of social media participants used), Question 4 (gender), and Question 7 (producing social media). The full statistics for age and gender are included in Table 1.

**Table 1***Descriptive Statistics*

	Response	%	N	Mean	SD
Q2 Age			166	27.67	24.70
	18-29	20.48%	34		
	30-41	40.36%	67		
	42-53	24.10%	40		
	54-65	11.45%	19		
	66+	3.61%	6		
	Skip this Question	0.00%	0		
Q4 Gender			166	27.67	40.33
	Male	37.35%	62		
	Female	56.63%	94		
	Nonbinary	3.61%	6		
	Transgender	0.60%	1		
	Gender Identity	0.00%	0		
	Not Listed/Other				
	Skip this Question	1.81%	3		

**Treatment and/or Intervention Fidelity**

A total of 166 responses were used for analysis following these treatments. The treatment administered went as planned and there were no challenges noted that prevented the planned implementation of the survey or data collection. No adverse consequences or events occurred relating to the intervention. Due to the survey questions for the data, the responses were dummy-coded numerically to run regression analysis with the variables which was noted in the following section. No further treatment or interventions were completed with the data.

**Results**

As noted, there were 166 responses from the survey that were not excluded by the criteria used for data analysis. The data were then analyzed for each research question provided in the earlier sections and chapters using multiple linear regression. In each of

the research question sections, the variables were dummy-coded to represent numerical variables for the categories, such as the Likert scale responses. Dummy coding is converting the categorical data represented in the responses into numerical values to run a regression analysis (Field, 2013). Dummy coding included converting Question 3's responses to 1 for a selected response, or 0 for a non-selected response for coding social media types used, as this question selected all that applied. Dummy coding for Question 2 (age) was coded as 18-29 = 1, 30-41 = 2, 42-53 = 3, 54-65 = 4, 66+ = 5, Skip this question = 6. Dummy coding for Question 4 (gender identity) consisted of male = 1, female = 2, nonbinary = 3, transgendered = 4, gender identity not listed/other = 5, and skip this question = 6. Questions 7 and 17 were all Likert scales with six responses: strongly agree = 1, agree = 2, neither agree nor disagree = 3, disagree = 4, strongly disagree = 5, and skip this question = 6. Question 36 was represented as 0 – 10 as prompts (0 not at all to 10 being extremely) as well as an option to skip the questions. The following sections reflect the data analysis between each of the research questions in relation to the variables.

### **RQ 1**

RQ 1 was “Is social media use significantly predicted by perceptions of mass shootings and mental illness stigma when controlled for other variables?” The survey questions were selected to best reflect the variables to answer the research question. The dependent variable, social media use, was best reflected in Question 7 (producing content for social media using own abilities), perceptions of mass shootings were best reflected in Question 36 (media coverage about mass shootings making respondents mad), and

mental illness stigma was best reflected in Question 17 (mentally ill people tend to be violent).

Prior to the regression analysis, the assumptions of normality, homoscedasticity, and absence of multicollinearity were examined prior to the interpretation of the regression. With the assumption of normality to examine if the regression is approximately distributed, the skewness was 0.924 and the kurtosis was 0.163, both of which were within the range of -1 to 1, which was noted in an acceptable range (Field, 2013). The Shapiro-Wilk test was noted as 0.850,  $p < .001$ , which was significantly non-nominal. The Durbin-Watson reflected a value within 0 and 4 reported as 1.815, reflecting there was no correlation between the residuals. The Q-Q plot is represented in Figure 1 and the P-P plot is represented in Figure 2, demonstrating the regression appears normally distributed. The assumption of homoscedasticity, defined as the residuals of the regression having an equal approximate variance, was examined in Figure 3, where it does not appear to have violated this assumption (Field, 2013). Multicollinearity was examined using the VIF values, which should notably range between 1 and 5 to indicate the absence of multicollinearity (Field, 2013). All predictors in the regression model had VIFs above 1 and below 5, with Q17 and Q36 reflecting 1.001.

## Table 2

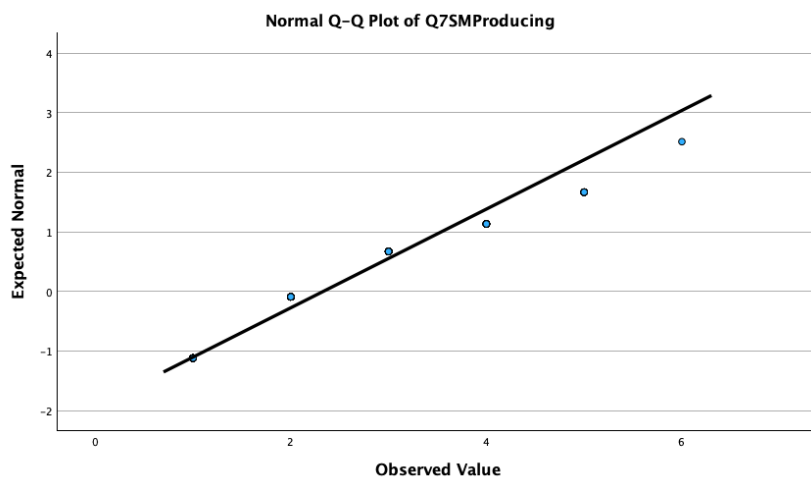
### *Observation Durbin-Watson Test for RQ 1*

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std Error of the Estimate	Durbin-Watson
1	.304	.092	.081	1.158	1.815

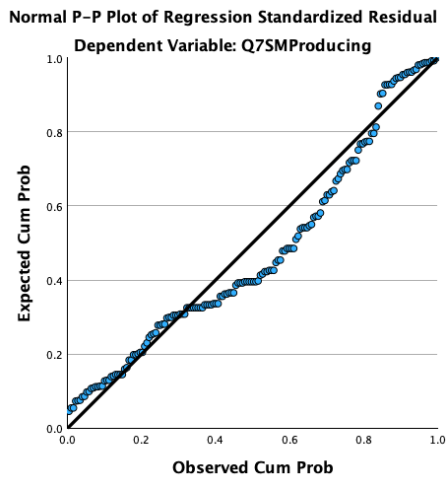
Dependent Variable Q7SMProducing

**Figure 1**

*Q-Q plot of Variable Q7SMProducing Testing Normality*

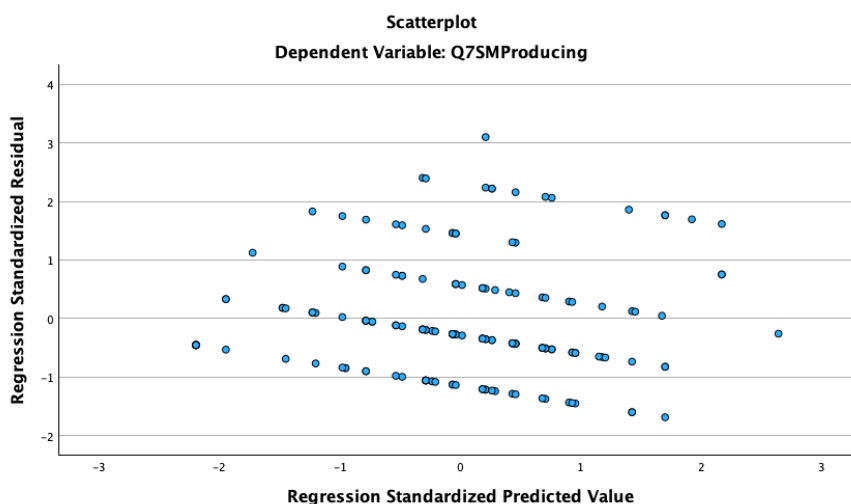
**Figure 2**

*P-P Plot Assumed a Probability Distribution for Normality*



**Figure 3**

*Scatterplot of Variable Q7SMProducing Assessing Homoscedasticity*



As none of the assumptions appeared violated, the results of the linear regression were interpreted. The results were interpreted using an F test, followed by the significance of the individual variables, and then analyzing the relationship of the unstandardized beta coefficient (B) (Field, 2013). The multiple linear regression was conducted to examine the relationship between Q17 (mental illness and violence), Q36 (did news coverage of mass shootings make respondents mad), and Q7 (respondents producing social media). The results of the linear regression model  $F(2, 163) = 8.305, p = <.001, R^2 = .081$ . This indicated that 9.2% of the variance of the responses regarding the response social media use was accounted for by the other variables. As such, the individual variables were then provided in Table 3 below.

The individual variables examined both demonstrate significance, which shows these variables, with Q7, Q17, and Q36, predict a change. Accordingly, the null

hypothesis could be rejected in favor of the alternative hypothesis, noting that social media use was significantly predicted by perceptions of mass shootings and mental illness stigma, according to these variables. These results were noted in Table 4, with mass shooting coverage making respondents feel mad (Q36) as  $p < .003$ , and mentally ill people tend to be violent, representing mental illness stigma as  $p < .006$ .

Despite rejecting the null hypothesis, the  $R^2$  value reflected .092 related to this regression, which suggested that the feelings relating to mass shootings and the perception that mentally ill people are violent accounted for 9.2% of the variation among social media use, meaning 90.8% of said variation could not be accounted by these factors alone. This result showed that individuals who produce their own social media had a significant response to feeling mad after seeing media coverage about a mass shooting, and indicated a significant response to beliefs relating to individuals with mental illness who tend to be violent. Further analysis was conducted for the next research question in the following section.

**Table 3**

*ANOVA for Linear Regression*

<i>Model</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>n<sup>2</sup></i>
1	Regression	22.266	2	11.133	8.305	.001	0.092
	Residual	218.511	163	1.341			
	Total	240.777	165				

**Table 4**

*Results for Linear Regression*

<i>Variable</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	95% CI
(Constant)	2.264	0.297		7.619	<.001	[1.677, 2.851]

Q36MSMad	-0.091	0.030	-0.227	-3.042	.003	[-0.150, -0.032]
Q17MIViolent	0.173	0.061	0.210	2.811	.006	[0.051, 0.294]

Dependent Variable: Q7SMProducing

## RQ 2

For RQ 2, “Is type of social media significantly predicted by perceptions of mass shootings and mental illness stigma when controlled for other variables?”, the survey questions were selected to best reflect the variables to answer the research question. The dependent variable, social media types, was best reflected in question three (what websites or apps were used by respondents for social media), perceptions of mass shootings were best reflected in question 36 (media coverage about mass shootings making respondents mad), and mental illness stigma was best reflected in question 17 (mentally ill people tend to be violent). Question three was to select all that apply and within SPSS this question was analyzed after converting the response into a crosstabulation to interpret.

Prior to the regression analysis, the assumptions of normality, homoscedasticity, and absence of multicollinearity were examined prior to the interpretation of the regression. With the assumption of normality to examine if the regression is approximately distributed, the skewness was 0.397 and the kurtosis was -0.048, both of which were within the range of -1 to 1, which was noted in an acceptable range (Field, 2013). The Shapiro-Wilk test was noted as 0.962,  $p < .001$ . The Durbin-Watson reflected a value within 0 and 4 reported as 1.864, reflecting there was no correlation between the residuals. The Q-Q plot is represented in Figure 4 and the P-P plot is represented in Figure 5, demonstrating the regression appears normally distributed. The assumption of

homoscedasticity, defined as the residuals of the regression having an equal approximate variance, was examined in Figure 6, below, where it does not appear to have violated this assumption (Field, 2013). Multicollinearity was examined using the VIF values, which should notably range between 1 and 5 to indicate the absence of multicollinearity (Field, 2013). All predictors in the regression model had VIFs above 1 and below 5, with Q17 and Q36 reflecting 1.001.

**Table 5**

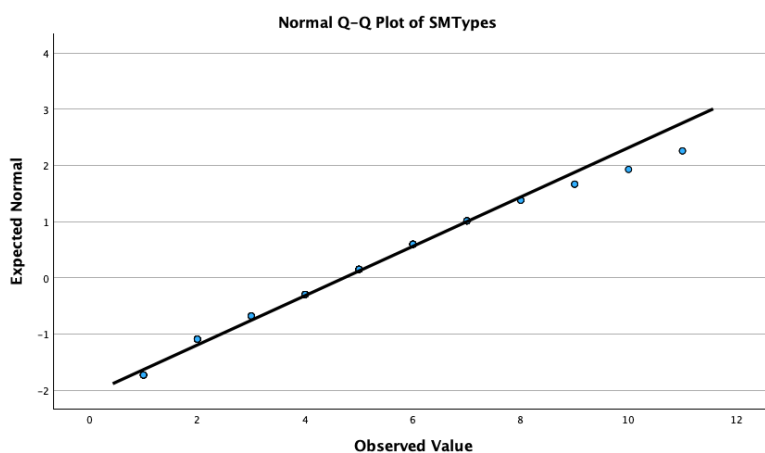
*Observation Durbin-Watson Test for RQ 2*

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std Error of the Estimate	Durbin-Watson
1	.303	.092	.080	2.186	1.864

Dependent Variable SMTypes

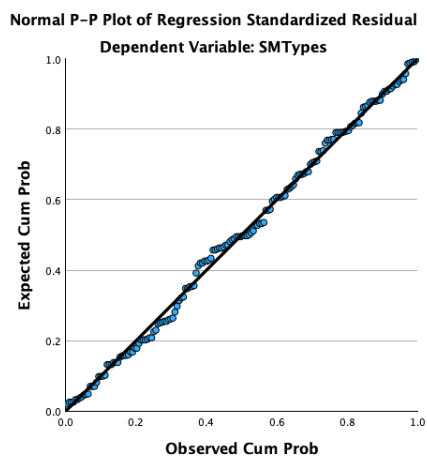
**Figure 4**

*Q-Q Plot of Variable Q3SMTypes Testing Normality*

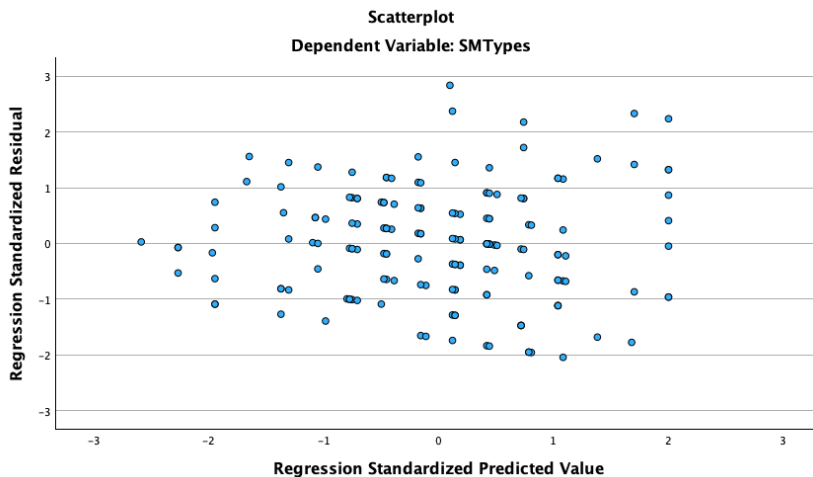


**Figure 5**

*P-P Plot Assumed Probability Distribution for Normality*

**Figure 6**

*Scatterplot of Variable Q3SMTypes Assessing Homoscedasticity*



As none of the assumptions appeared violated, the results of the linear regression were interpreted. The results were interpreted using an F test, followed by the significance of the individual variables, and then analyzing the relationship of the

unstandardized beta coefficient (B) (Field, 2013). The multiple linear regression was conducted to examine the relationship between Q17 (mental illness and violence), Q36 (did news coverage of mass shootings make respondents mad), and Q3 (types of social media respondents used). The results of the linear regression model  $F(2, 163) = 8.218, p = <.001, R^2 = .092$ . This indicated that 9.2% of the variance of the responses regarding the response social media use was accounted for by the other variables. As such, the individual variables were then provided in Chapter 4, Table 4.

The individual variables examined did demonstrate significance which one variable (Q36, feeling mad after watching news of a mass shooting) but not the other (Q17, mentally ill tend to be violent). Table 7, which showed these variables, with Q3, Q17, and Q36 did not predict a change. Accordingly, due to this, the null hypotheses could not be rejected in favor of the alternative hypothesis, noting that social media types were not significantly predicted by perceptions of mental illness stigma according to these variables, despite Q36 showing significance. These results were noted in Table 7, with mass shooting coverage making respondents feel mad (Q36) as  $p < .001$  and mentally ill people tend to be violent representing mental illness stigma as  $p < .058$ .

Despite being unable to reject the null hypothesis, the  $R^2$  value reflected .092 related to this regression, which suggested that the feelings relating to mass shootings and the perception that mentally ill people are violent accounted for 9.2% of the variation among social media use, meaning 90.8% of said variation could not be accounted by these factors alone. This result showed that the type of social media did not have a significant response to feeling mad after seeing media coverage about a mass shooting

and indicated a significant response to beliefs relating to individuals with mental illness tend to be violent. Further analysis was conducted for the next research question in the following section.

**Table 6**

*ANOVA for Linear Regression*

<i>Model</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>n</i> <sup>2</sup>
1	Regression	78.519	2	39.259	8.218	.001	0.091
	Residual	778.734	163	4.778			
	Total	857.253	165				

**Table 7**

*Results for Linear Regression*

<i>Variable</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>95% CI</i>
(Constant)	4.265	0.561		7.603	<.001	[3.157, 5.373]
Q36MSMad	0.206	0.057	0.272	3.638	<.001	[0.094, 0.318]
Q17MIViolent	-0.221	0.116	-0.143	-1.908	.058	[-0.450, 0.008]

Dependent Variable: Q3SMTypes

### RQ 3

For RQ 3, “Is the age range significantly predicted by perceptions of mass shootings and mental illness stigma when controlled for other variables?”, the survey questions were selected to best reflect the variables to answer the research question. The dependent variable, age range, was best reflected in question two (age range of respondents), perceptions of mass shootings were best reflected in question 36 (media coverage about mass shootings making respondents mad), and mental illness stigma was best reflected in Q 17 (mentally ill people tend to be violent).

Before the regression analysis, the assumptions of normality, homoscedasticity,

and absence of multicollinearity were examined prior to the interpretation of the regression. With the assumption of normality to examine if the regression is approximately distributed, the skewness was 0.581 and the kurtosis was -0.193, both of which were within the range of -1 to 1, which was noted in an acceptable range (Field, 2013). The Shapiro-Wilk test was noted as 0.884,  $p < .001$ . The Durbin-Watson reflected a value within 0 and 4, reported as 1.860, reflecting there was no correlation between the residuals. The Q-Q plot is represented in Figure 7, and the P-P plot is represented in Figure 8, demonstrating that the regression appears normally distributed. The assumption of homoscedasticity, defined as the residuals of the regression having an equal approximate variance, was examined in Figure 9, where it does not appear to have violated this assumption (Field, 2013). Multicollinearity was examined using the VIF values, which should notably range between 1 and 5 to indicate the absence of multicollinearity (Field, 2013). All predictors in the regression model had VIFs above 1 and below 5, with Q 17 and Q 36 reflecting 1.001.

**Table 8**

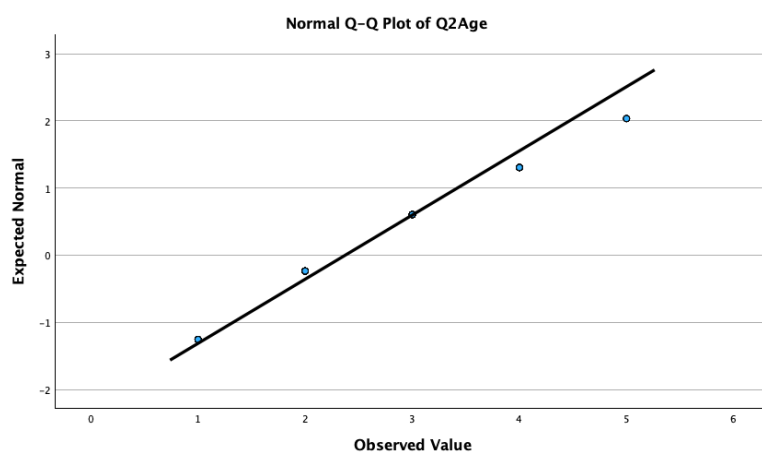
*Observation Durbin-Watson Test for RQ 3*

Model	$R$	$R^2$	Adjusted $R^2$	Std Error of the Estimate	Durbin-Watson
1	.179	.032	.020	1.036	1.860

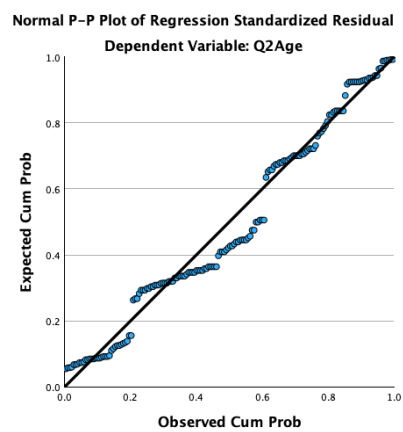
Dependent Variable Q2Age

**Figure 7**

*Q-Q Plot of Variable Q2Age Testing Normality*

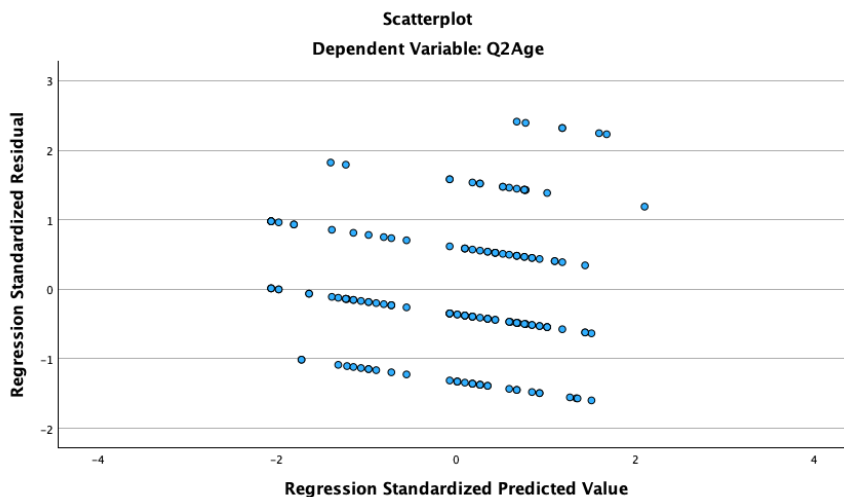
**Figure 8**

*P-P Plot Assumed Probability Distribution for Normality*



**Figure 9**

*Scatterplot of Variable Q2Age Assessing Homoscedasticity*



As none of the assumptions appeared violated, the results of the linear regression were interpreted. The results were interpreted using an F test, followed by the significance of the individual variables, and then analyzing the relationship of the unstandardized beta coefficient (B) (Field, 2013). The multiple linear regression was conducted to examine the relationship between Q 17 (mental illness and violence), Q 36 (did news coverage of mass shootings make respondents mad), and Q 2 (respondents' age). The results of the linear regression model  $F(2, 163) = 2.701, p = <.070, R^2 = .032$ . This indicated that 3.2% of the variance of the responses regarding the response age range was accounted for by the other variables. It is noted that there was no significance found with this model other than with Q 17 as a predictor but the data were still provided to demonstrate this. As such, the individual variables were then provided in Table 10.

The individual variables examined did not demonstrate significance, which

showed these variables, with Q 2, Q 17, and Q 36 did not predict a change. Accordingly, due to this, the null hypothesis could not be rejected in favor of the alternative hypothesis, noting that the age range was not significantly predicted by perceptions of mass shootings and despite significance regarding mental illness stigma according to these variables. These results were noted in Table 3, with mass shooting coverage making respondents feel mad (Q 36) as  $p < .555$  and mentally ill people tend to be violent representing mental illness stigma as  $p < .025$ .

Notably, while being unable to reject the null hypothesis, the  $R^2$  value reflected .032 related to this regression suggested that the feelings relating to mass shootings and perception that mentally ill people are violent accounted for 3.2% of the variation among age range, meaning 96.8% of said variation could not be accounted by these factors alone. This result showed that the age of the individual did not have a significant response to feeling mad after seeing media coverage about a mass shooting and indicated a significant response to beliefs relating to individuals with mental illness tend to be violent. Further analysis was conducted for the next research question in the following section.

**Table 9**

*ANOVA for linear regression*

<i>Model</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>n<sup>2</sup></i>
1	Regression	5.801	2	2.900	2.701	.070	0.032
	Residual	175.042	163	1.074			
	Total	180.843	165				

**Table 10***Results for Linear Regression*

Variable	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	95% CI
(Constant)	2.020	0.266		7.595	<.001	[1.495, 2.545]
Q36MSMad	-0.016	0.027	-0.046	-0.592	.555	[-0.069, 0.037]
Q17MIViolent	0.125	0.055	0.175	2.266	.025	[0.016, 0.233]

Dependent Variable: Q2Age

**RQ 4**

For RQ 4, “Is gender identification significantly predicted by perceptions of mass shootings and mental illness stigma when controlled for other variables?”, the survey questions were selected to best reflect the variables to answer the research question. The dependent variable, gender identification, was best reflected in question 4 (how do you identify), perceptions of mass shootings were best reflected in question 36 (media coverage about mass shootings making respondents mad), and mental illness stigma was best reflected in question 17 (mentally ill people tend to be violent).

Prior to the regression analysis, the assumptions of normality, homoscedasticity, and absence of multicollinearity were examined prior to the interpretation of the regression. With the assumption of normality to examine if the regression is approximately distributed, the skewness was 2.611 and the kurtosis was 11.846, both of which were not within the range of -1 to 1, which was noted in an unacceptable range (Field, 2013). The Shapiro-Wilk test was noted as 0.631,  $p < .001$ . The Durbin-Watson reflected a value within 0 and 4, reported as 1.942, reflecting there was no correlation between the residuals. The Q-Q plot is represented in Figure 10, and the P-P plot is represented in Figure 11, demonstrating that the regression appears normally distributed.

The assumption of homoscedasticity, defined as the residuals of the regression having an equal approximate variance, was examined in Figure 12, where it does appear to have violated this assumption to a degree (Field, 2013). Multicollinearity was examined using the VIF values, which should notably range between 1 and 5 to indicate the absence of multicollinearity (Field, 2013). All predictors in the regression model had VIFs above 1 and below 5, with Q 17 and Q 36 reflecting 1.001. Due to these assumptions being violated, no further results were interpreted regarding the regression analysis, and it was assumed due to this that the null hypothesis could not be rejected.

**Table 11**

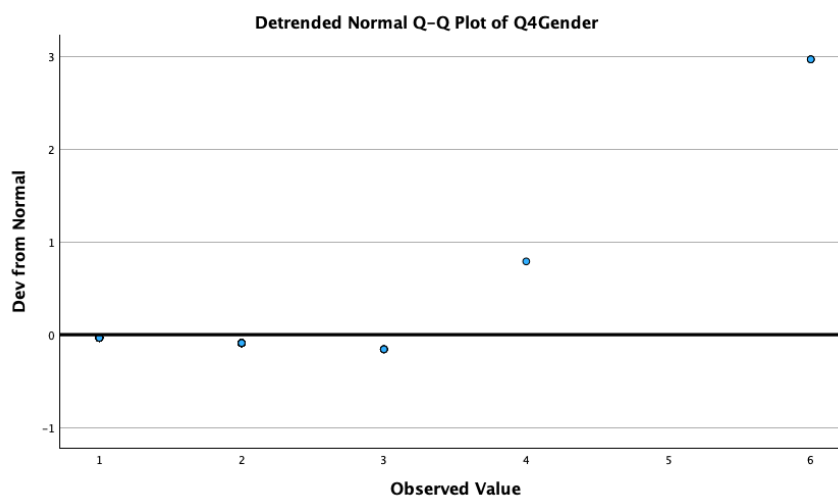
*Observation Durbin-Watson Test for RQ 4*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Std Error of the Estimate	Durbin-Watson
1	.091	.008	-.004	.816	1.942

Dependent Variable Q4Gender

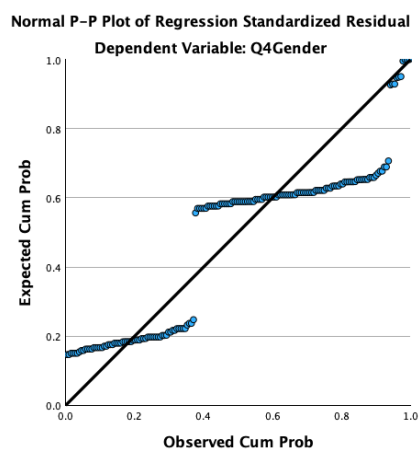
**Figure 10**

*Q-Q Plot of Variable Q4Gender Testing Normality*

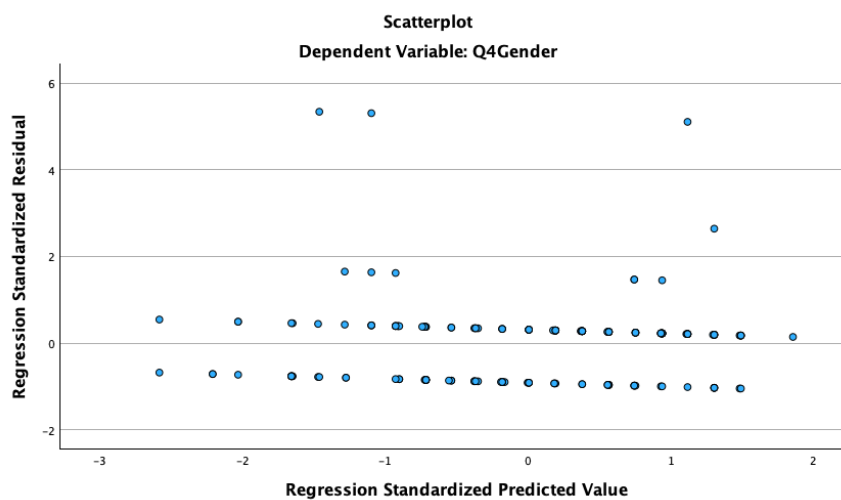


**Figure 11**

*P-P Plot Assumed Probability Distribution for Normality*

**Figure 12**

*Scatterplot of Variable Q4Gender Assessing Homoscedasticity*



### Summary

The results of this section were compiled from data from 166 participants who were not excluded from the study in responses from SurveyMonkey.com. These

responses were collected from November 8, 2023, to January 6, 2024, in a public, anonymous survey. Participants were excluded if they did not indicate they were 18 or older and living in the United States for at least 1-year. The results of the hypothesis indicated out of the four research questions, only research question one rejected the null hypothesis. Each research question shared the same predictor variables, however, only the dependent variable, Q 7 (social media use/production) yielded a significant result to reject the null hypothesis. Within RQ 2 and RQ 3 there were no significant results to reject the null hypothesis. Given that the assumptions were not met for the data for RQ 4, the null hypothesis could not be rejected, which included significant multicollinearity. The following section, Chapter 5, discusses the results in context with relevant literature, as well as the strengths and limitations of the study. The following chapter will also give appropriate recommendations for future research.

## Chapter 5: Discussion, Conclusions, and Recommendations

This study was conducted to examine if there was a correlational relationship present between mass shooting perceptions and mental illness stigma through social media as a means for the public to speculate and share this information. Social media is widely used to discuss a variety of topics and opinions, including speculations about why mass shootings may occur. Mental illness stigma can be harmful to individuals diagnosed with mental illness, as they may self-stigmatize, the public may stigmatize, or there may be structural stigmas in place within laws and policies, particularly with speculations of violence (Anestis & Daruwala, 2021; Chan & Yanos, 2018; Pescosolido et al., 2019; Reavley et al., 2016). As there is research demonstrating that most individuals diagnosed with severe mental illness are not violent, this study sought to examine the variables of mass shooting perceptions, public stigma of mental illness, and social media use. This study also sought to address a gap in research from the variables while also examining if there could be a greater understanding of social media's impact. Through the findings further discussed in this chapter, the study attempted to address if there was a correlation between mass shooting perceptions, mental illness stigma, social media use, type of social media, age, and gender. While the study did not provide the results anticipated, there was information gained from the study regarding these variables.

### **Interpretation of the Findings**

While the results of the study were not anticipated, there was information provided that furthered information in this gap within the literature. The basis for this study, to examine the impacts of in-group and out-group members, with those diagnosed

or identifying with mental illness and those with not was speculated to have a potential for prejudicial beliefs (Billig, 2002; Tajfal, 1974; Turner et al., 1979). The belief that there may be an “us versus them” mentality in which negative or trivializing behavior was hypothesized as the basis for the survey (Bourhis, 2020; Pescosolido et al., 2019; Reavley et al., 2016; Robinson et al., 2019). With the basis of stigma having an extensive impact on individuals with mental illness that can range from decreased treatment seeking to lack support socially, as well as impacts to treatment choices, beliefs, exclusions, misconceptions, and potential policy reforms, it was speculated that individuals would respond to the survey with beliefs regarding individuals with mental illness, mass shootings, and their social media use responding about potential violence regarding people with mental illness (Pescosolido et al., 2019; Reavley et al., 2016; Varshney et al. 2016).

The basis for the study and the findings was examined in the context that mental illness has been discussed as a scapegoat for mass violence and there are discussed impacts on individuals with mental illness, including discussions on social media, despite little to no evidence to support these assertions (Knoll & Annas, 2016; Skeem & Mulvey, 2019). These assertions are discussed on news outlets and more frequently on social media, as it has rapidly grown as a method to consume news online but also communicate about said information (Hammarlund et al., 2020; Shortland & McCabe, 2019). Further gaps were noted previously about gender and age and their potential relationship, as there was minimal information between said variables.

The findings of the study further attempted to extend knowledge in these areas

where there is a lack of overlap in these literature gaps. These factors have had the basis of examination with in-group and out-group theoretical lenses in relation to mental illness stigma, however, data in reflection of the other factors were not previously present in the literature. While the findings extended the knowledge in the area of these variables and discussion, there would be a benefit for further literature in relationship to this subject matter.

Of the research questions presented, only one of the research question results was able to reject the null hypothesis. In RQ 1, I examined whether there was a significant relationship between perceptions of mass shootings (Q 36 respondents becoming mad when watching news about mass shootings), perceptions about mental illness stigma (Q 17 belief individuals with mental illness may become violent), and social media use (Q 7 respondents using social media). The results revealed there was a statistically significant relationship with the variables, finding that respondents indicating social media use had a significant reaction to the responses relating to perceptions of anger from mass shooting news stories and perceptions of mental illness and violence. However, this interaction represented a small number of the variation at 9.2%. The variables Q 17 ( $p = .006$ ) and Q 36 ( $p = .003$ ) were found to be significant variables relating to Q 7. The null hypothesis was rejected for RQ 1, indicating that social media use was significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for the other variables.

In RQ 2, I examined whether there was a significant relationship between perceptions of mass shootings (Q 36 respondents becoming mad when watching news

about mass shootings), perceptions about mental illness stigma (Q 17 belief individuals with mental illness may become violent), and social media types used (Q 3 social media types used by respondents). The results revealed there was only a statistically significant relationship with one of the variables, as respondents indicating social media use had a significant reaction to the responses relating to perceptions of anger from mass shooting news stories but was not significantly related to perceptions of mental illness and violence. This interaction represented a small number of the variation at 9.2%. The variable Q 36 ( $p < .001$ ) was found to be a significant variable relating to Q 3, while Q 17 ( $p = .058$ ) was not by a slight margin. The null hypothesis for RQ 2 could not be rejected, meaning the type of social media could not be significantly predicted by perceptions of mass shootings and perceptions of mental illness stigma.

In RQ 3, I examined whether there was a significant relationship between perceptions of mass shootings (Q 36 respondents becoming mad when watching news about mass shootings), perceptions about mental illness stigma (Q 17 belief individuals with mental illness may become violent), and age (Q 2 age of respondents). The results revealed there was only a statistically significant relationship with one of the variables, as respondents indicated that social media use did not have a significant reaction to the responses relating to perceptions of anger from mass shooting news stories but was significantly related to perceptions of mental illness and violence. This interaction represented a small number of the variation at 3.2%. The variable Q 17 ( $p = .025$ ) was found to be a significant variable relating to Q 3, while Q 36 ( $p = .555$ ) was not. The null hypothesis for RQ 3 could not be rejected, meaning the type of social media could not be

significantly predicted by perceptions of mass shootings and perceptions of mental illness stigma.

In RQ 4, due to being unable to run the measures due to violations of the assumptions, the research question's null hypothesis could not be rejected. Adding more variables could have increased the output, including for the other research questions. However, the variables were not added at this time due to the hypotheses being examined to remain relevant to this study. Further research into this topic and variables has the potential to be addressed in the future.

### **Limitations of the Study**

There were limitations present within the study, which were noted in Chapter 1. The first limitation was that there was an assumption for the respondents to have access to the internet. While participants were able to respond via SurveyMonkey, Walden University's participant pool, and social media, it is unknown how significantly it limited access to some participants. While the topic of the study featured social media use, there was a potential for participants with minimal technological use to participate. Access concerns were also noted through the survey being presented only in English with no other language option. The second limitation previously discussed was that the platform was on the website, SurveyMonkey, which had the potential to gather IP addresses. While SurveyMonkey had the option to collect these IP addresses, these data were not selected to minimize the breach of anonymity for participants. Limitations for regression use were also noted due to overfitting, insensitivity to outliers, and assumptions of linearity (Frankfort-Nachmias & Leon-Guerrero, 2018; Field, 2013). Threats to internal

and external validity were also considered. Care was taken and examined to minimize these limitations.

Further limitations were noted following the collection of the data and data analysis. Following these portions of the study, it was found that the data produced had relatively small significance. Future studies may be able to address limitations relating to the variable questions related to the hypotheses, potential other means of collecting the data, and more robust questions asked. The data also found that RQ 4 was not analyzed beyond finding violations of regression assumptions, which was also noted as a limitation.

### **Recommendations**

Due to the research findings and minimal information regarding this area of research, there was a recommendation for further research within this area of study to further address the gap in the literature. A follow-up study to bolster the results relating to this study would have been beneficial, as well as further research questions examining the topic of this study. With the results of the study, there would be a benefit for further data examining this topic, as there remains relevance to social issues with the subject of mental illness stigma and the correlation presented in the news about mass shootings. Given the spread of information on social media, there is still a significant amount of information that can be potentially obtained from further examination in this field and subject matter.

As this study examined the data from participants using scales relevant to the matter, future research may choose different scales, methods, or alternatives to pursue the

subject matter. With significance found within this study, further research could be proven beneficial to bolster what is known and provide benefits relating to the topics, such as how social media influences these topics, spread of information, benefits to harm reduction relating to mental illness stigma, and addressing perceptions relating to mass shootings. There is also uncertainty in how the response rate was affected by mass shootings that occurred while data collection was being conducted. A total of six mass shootings occurred during the time of data collection, and there would be a benefit in examining how data collection could have been affected by this as well.

### **Implications**

Despite being unable to reject all the null hypotheses, there is still potential for impacting positive social change. RQ 1 was able to reject the null hypothesis, finding that social media use was significantly predicted by perceptions of mass shootings and mental illness stigma when controlling for the other variables. Although RQ 2, RQ 3, and RQ 4 could not reject the null hypothesis in this study, there is still the potential for further research to examine these variables to continue research on the potential relationship between these variables. These impacts can include that this study attempted to address a gap in the literature, which can further encourage and provide a basis for attempting to address this gap. The implications of further research continuing to address these variables within this field can prove beneficial on a basis to further understand the impacts of these social issues and their interactions. With the wide use of social media as a basis for communication and sharing information on a large scale, the pervasive use has a further potential to be studied to continue positive social change (Clement, 2020).

Further research, particularly if encouraged by this study, would demonstrate an impact on positive social change. Given the risk posed by stigma to individuals with mental illness and ongoing mass shooting perceptions and speculations, there are implications for further analysis of the impacts these factors may pose on society.

### **Conclusion**

In conclusion, mental illness stigma has a notable impact on an individual basis, societal, and group that has become a topic of speculation relating to dangerousness while discussing mass shootings, mental illness, and violence (Pescosolido et al., 2019; Reavley et al., 2016; Varshney et al. 2016). These speculations were a driving force in examining what impact, if any, could be correlated among discussions of mental illness stigma, mass shooting perceptions, and the impacts of social media. In a time where the spread of information has altered from previous times and these talking points persist, there are benefits to continuing to focus on these variables. Any additional knowledge gained or discussions arising from this study or otherwise can lead to a greater understanding of this subject matter and lead to positive social change for any individuals affected by these factors. This study aimed to help address some of the gaps in literature and, hopefully, further research will continue to examine these topics not only for further information but also to address the harmful aspects of these topics.

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Appendix: Recruitment Letter

**Would you like to participate in an anonymous online survey?**

**I would like to hear from you!**

My name is Kayla Cross. I am currently a doctoral student at Walden University and I am conducting a quantitative research study to explore public perception of mass shootings and mental health in conjunction with social media as part of my doctoral degree expectations in Forensic Psychology. I am only acting as a doctoral student for this study. Your decision to participate or elect not to participate will have no impact on any other institute or establishment.

**If you decide to participate in this research, you will be asked to:**

- ◇ Complete a 20-minute survey online confidentially.
- ◇ Understand there is no payment provided for participation.

**You may participate in this survey if you:**

- ◇ Are 18 or older.
- ◇ Have lived in the United States for at least one year.

**If you are interested, please click the link below.**

**If you have any questions or concerns, I can be reached at the following:**