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# A dual-process approach to stigma reduction using online, user-generated narratives in social media messages

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A DUAL-PROCESS APPROACH TO STIGMA REDUCTION USING ONLINE,
USER-GENERATED NARRATIVES IN SOCIAL MEDIA MESSAGES

by

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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To my parents. Thank you for always letting me follow my wandering star.

**ABSTRACT**

Mental illness is a widespread public health concern. Stigma is a known barrier to recovery, and individuals often avoid seeking treatment because of it. The purpose of my research was to understand how individuals process peer-created, mental illness messages on social media, and to what extent these messages reduce stigma. I conducted two experiments based on the Elaboration Likelihood Model (ELM) to examine attitudes related to negative beliefs about mental illness and preferred social distance from mentally ill individuals.

Argument quality and amount of elaboration influenced empathetic responses to a message. Empathy was directly associated with a decrease in stigmatized beliefs about mental illness. Individuals who perceived that the message sharer was a close, trusted friend were more likely to indicate that the original message creator was more credible. Original message creators who disclosed having a mental illness were also perceived as more credible than creators who did not disclose having a mental illness. In addition, participants who perceived that the message sharer positively endorsed the message had less stigmatized beliefs about mental illness than participants who perceived negative endorsements.

Results of this project suggest that traditional ELM variables, such as elaboration and argument quality, influence the processing and outcomes of viewing social media messages about mental illness. Several new media characteristics, such as who shares the message online and comments they attach to the message, also influence how users think about the message and influence processing outcomes.

## PUBLIC ABSTRACT

Mental illness is a widespread public health concern. Stigma is a known barrier to recovery, and individuals often avoid seeking treatment because of it. The purpose of my research was to understand how individuals process peer-written, mental illness messages on social media, and to what extent these messages reduce stigma. I conducted two experiments to examine changes in attitudes related to negative beliefs about mental illness and preferred social distance from mentally ill individuals.

Original message creators who disclosed having a mental illness were seen as more credible than creators who did not disclose having a mental illness. Positive message endorsements from message sharers led to less stigmatized beliefs about mental illness. Empathy had the most impact on stigmatized beliefs. When individuals reported high levels of empathy, they had less stigmatized beliefs about mental illness.

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**CHAPTER ONE: INTRODUCTION**

Mental illness is a widespread public health concern. The Centers for Disease

Control and Prevention (2011) reported that nearly 50% of adults in the U.S. will develop

at least one mental illness in their lifetime, and 46.3% of adolescents aged 13-18 have

experienced some form of mental illness. Anxiety and mood disorders are the two most

common mental illnesses reported (CDC, 2011). The third most common cause of

hospitalization in the U.S. for youth and adults 18-44 years old is episodes of mood

disorders, such as depression (Agency for Healthcare Research and Quality [AHRQ],

2009). In addition, mood disorders account for more life and work disability in developed

countries than any other disease, including cancer and heart disease (CDC, 2013).

However, only 58.7% of adults with a serious mental illness receive treatment for it

(SAMHSA, 2011). Stigma is a known barrier to recovery from mental illness, and

individuals often avoid seeking treatment because of it (Wahl, 2003; Weiss,

Ramakrishna, & Somma, 2006).

Public opinion has historically been unfavorable toward individuals with mental

illness (Wahl, 2003). Survey responses indicate an unwillingness to work with someone

with a mental illness, and many individuals believe that those with a psychiatric illness

are likely to become violent (Pescosolido et al., 2010). Mass media often portray

individuals with mental illness as dangerous and violent. In particular, mental illness is

often blamed in the aftermath of sensational killings and mass murders (McGinty,

Webster, & Barry, 2013; Wahl, 2003). For example, it has been reported that the

Germanwings Flight 9525 co-pilot who crashed a plane in the French Alps in an apparent

murder-suicide on March 24, 2015, killing all 150 people on board, struggled with

depression (Kulish, Eddy, & Clark, 2015). This type of coverage often links mental illness with tragic events and violent outcomes despite attempts by doctors and advocates to reduce this stigmatizing belief. Research suggests that even individuals who have mental illnesses are likely to stigmatize others with mental illness after exposure to stigmatizing media (Romer & Bock, 2008).

Several organizations are turning to the internet to combat mental illness stigma. For the 2015 National Mental Illness Awareness Week, the National Alliance on Mental Illness (NAMI) promoted an anti-stigma theme for its outreach programs (NAMI, 2015). One goal of this campaign was to focus "on connecting with people to see each other as individuals and not a diagnosis" (NAMI, 2015). Titled #IamStigmaFree, this campaign was aimed at reducing mental illness stigma and encouraged individuals to participate by sharing their own stigma experiences on social media and using hash tags to show off activities during the week. Bring Change 2 Mind is an organization founded to "end the stigma and discrimination surrounding mental illness" (BC2M, 2016). BC2M's 2015 #StrongerThanStigma campaign asked users on social media to share messages that raised awareness about the stigma of men with mental illness. The campaign provided public services videos, graphics, and news stories for users to share, but also encouraged individuals to share personal stories about mental illness using the campaign's social media hash tag.

Some individuals choose to share personal stories about struggles with mental illness online outside of the context of an official campaign or organizing group. Previous research suggests that some people choose to share personal narratives for a variety of reasons, such as providing mutual support and shared experiences with a group of peers

(Naslund, Grande, Aschbrenner, & Elwyn, 2014). Although several organizations encourage individuals to share personal experiences with mental illness stigma on social networks, little is known about how these narratives influence people who view them online.

## Purpose of Study

The goal of this dissertation was to test a proposed model of how individuals process anti-stigma messages regarding mental illness on social media. The purposes of my research were to better understand how social media users process user-generated messages about mental illness and to explore to what extent this processing may influence stigmatized beliefs. This study was primarily interested in how messages created by someone with a mental illness might influence attitudes of non-mentally ill individuals. Given this unique communication context, a dual-processing model of social media messages was developed using the Elaboration Likelihood Model (ELM) as a framework (Petty & Cacioppo, 1986). To fulfill the goals of this project, one pilot study and two experiments were conducted. First, I conducted a pilot study to develop stimuli for the experimental studies. The first experiment tested how argument quality and empathy might influence message processing and outcomes from an ELM perspective. More specifically, I examined outcomes related to negative beliefs about individuals with mental illness and preferred social distance from mentally ill individuals. In experiment two, variables related to social media messages, such as relationship to message sharer (apomediary) and evaluation of the message creator, tested how these concepts might integrate into an ELM framework.

Overall, this research agenda further explored the changing landscape of health communication by examining the influence of user-generated messages about mental illness on stigmatized beliefs of the general public. Results of this project will further the use of the elaboration likelihood model within an online context, which will ultimately contribute to a more holistic understanding of how user-generated, online health messages influence users. In addition, these results will help communicators craft better stigma-reduction messages that fit into the online environments of target audiences.

### Stigmatized Beliefs About Mental Illness

Goffman (1963) suggested that stigma arises from the social need to categorize people for identification and socialization purposes.  In short, we project normative expectations upon people based on this categorization, which may be grounded in any number of physical, psychological, or social characteristics. Stigma occurs when this process leads to ascribing certain characteristics – often undesirable and discrediting – to a particular attribute of an individual (Goffman, 1963). Scholars suggested that stigma is the attribute (ex: mental illness) identified in an individual that leads to stereotyped beliefs, often in the form of undesirable traits (ex: dangerous) (Jones et al., 1984). In other words, a stigmatized attribute leads to stigmatized attitudes about that attribute. Stigma is studied in a variety of contexts, including race (Gaertner & McLaughlin, 1983), occupation (Macrae, Milne, & Bodenhausen, 1994), physical health conditions (Wang, 1998), and mental illness (Feldman & Crandall, 2007), among others.

Stigma can be thought of as the result of heuristic processes where people strive to save cognitive energy by applying shortcuts to a particular characteristic of an individual (Macrae et al., 1994). These cognitive shortcuts are often the result of complex

social processes and interactions that come from a variety of sources, including learned behavior from social groups and mass media. Media portrayals are known to promote stigma by continually associating certain people with undesirable characteristics. Stigma and stereotypes are frequently studied as part of the cultivation process, which suggests media portrayals play an important role in transmitting a system of messages that influence viewers' perceptions of reality (Gerbner et al., 2002). For example, overrepresentation of African-Americans in criminal roles in the media is known to contribute to the stigma that African-Americans are violent and commit crimes more often than other races (Dixon, 2008).

In the context of health, media portrayals of mentally ill individuals as criminals or dangerous people may lead to cognitive judgments that associate mental illness with violence or crime in real life (Wahl, 2003). Mental illness is often covered in terms of crime. More specifically, it is often blamed as a cause for crime (Patterson, 2006). News coverage of mass shootings often list an array of mental disorders and vague mentions of mental illness in general as possible motivation for the violent acts, which may help establish these negative opinions in the minds of the public. Previous research supports the notion that entertainment media play a significant role as sources of knowledge and attitudes about mental health topics and that these opinions have the potential to influence public policy (Wahl, 2003). Further, "mental illness" and "mental health" are common umbrella terms for a variety of psychiatric conditions and this interchangeable, vague wording may add to the formation of negative attitudes and inaccurate perceptions about individuals with mental disorders. Previous research suggests that framing mental illness

in a negative light results in negative attitudes about mentally ill individuals (Thornton &

Wahl, 1996).

Violence is not the only negative trait associated with mental illness. Anxiety and

mood disorders are often characterized as diseases of personal failings. Health-related

stigma is often associated with whether the condition is perceived to be the result of an

individual's behaviors and characteristics or the outcome of forces outside of the

individual's control (Feldman & Crandall, 2007). A health issue that is perceived as the

result of an individual's own actions (ex: contracting HIV after a one-night stand) is more

likely to be stigmatized than a condition that results from a genetic predisposition (ex:

having a peanut allergy) (Rintamaki & Weaver, 2008). Depression is often stigmatized as

a mental illness that is not a real affliction or could be overcome if an individual just tried

hard enough (Griffiths, Christensen, & Jorm, 2008). Anxiety is considered shameful or

embarrassing and stigmatized as the fault of the person who is diagnosed with it

(Griffiths, Batterham, Barney, & Parsons, 2011). Given these findings from previous

research, this dissertation project is interested in both violence and personal weakness

stigma associated with mental illness.

**Consequences of Mental Illness Stigma**

Stigma impacts individuals with mental illness because they may not seek

medical attention due to the negative traits associated with their diagnosis (Feldman &

Crandall, 2007). For example, individuals with mental illness are known to avoid visiting

a doctor and have low success maintaining a treatment regimen because of the effects of

perceived stigma (Weiss, Ramakrishna, & Somma, 2006). In addition, individuals with

stigmatized health conditions often assume that they will encounter negative reactions

from others if their condition is disclosed. This leads to increased fear of social rejection and often results in decreased social connections due to the desire to avoid hurtful responses to their medical condition (Hatzenbuehler, Phelan, & Link, 2013). Individuals who perceive their condition as stigmatized will have higher rates of stress and fear, which leads to negative health outcomes, such as high blood pressure and low life enjoyment (James et al., 1984). People with stigmatized health conditions are known to experience low self-esteem (Wright, Gronfein, & Owens, 2000), higher chance of unemployment (Link, 1982), and lower quality of life (Rosenfield, 1997) as a result of their condition. In addition, individuals with mental illness often report strained interpersonal relationships due to the stigmatization of mental illness (Feldman & Crandall, 2007).

It is common for an in-group/out-group dynamic to form around stigmatized health conditions because individuals without these issues see those affected by them as "other" and may be less likely to associate socially and/or condone differential treatment of stigmatized individuals. Mental illness patients may experience various forms of discrimination due to misconceptions about their disorder (Thornicroft, 2006). Link and Phelan (2001) assert that the application of "other" stereotypes leads to discrimination at both the individual and structural/institutional level for stigmatized conditions. Individual-level consequences might include avoidance of stigmatized persons or overt actions, such as rejecting employment applications or refusing housing (Link & Phelan, 2001). Structural-level consequences are often addressed by examining the institutional processes that systematically disadvantage a group of people. For example, racial stigma is often blamed for the widespread discrimination and continued disadvantages of

African Americans (Loury, 2005). Structural consequences of health-related stigma are often reflected in public policy and national priorities. Stigmatized illnesses may receive less research attention and funding for treatments (Link & Phelan, 2006), which indicates a broad, systematic discounting of both diagnosed individuals and the severity of stigmatized health issues.

**Stigma-Reduction Strategies**

Media campaigns often target stigma by correcting inaccurate beliefs about mental illness (Corrigan et al., 2012). Public service announcements, media campaigns, web pages, entertainment media, and advertisements are all common tools for educational outreach and are often favored due to their potential for low costs and broad audience reach (Finkelstein, Lapshin, & Wasserman, 2008). A meta-analysis of stigma-reduction interventions reported that increased knowledge about stereotypes of the mentally ill consistently reduced stigmatized beliefs, and media outreach may lead to an increased likelihood of positive behaviors, such as not avoiding contact with individuals with mental illness (Corrigan et al., 2012).

However, studies suggest that interpersonal interactions with individuals who have mental illnesses are significantly more effective at reducing stigmatized beliefs than media outreach (Corrigan et al., 2012). Previous studies reported that individuals who have contact with mental illness, for example, having a family member with a condition, were less likely to have stigmatized beliefs and more likely to have positive responses to strangers with mental illnesses (Couture & Penn, 2003; Phelan & Link, 2004). Individuals with prior contact with mental illness often directed less anger and blame at mentally ill individuals in vignettes describing the experience of a person with mental

illness using a third-person narrative, and they were less likely to desire social distance

from them (J. E. Boyd et al., 2010). In addition, desire for social distance is decreased

when an individual has a positive interaction with a person with mental illness (J. E.

Boyd, Katz, Link, & Phelan, 2010). Face-to-face interactions produced the greatest

influence on stigma reduction, but this kind of intervention may be costly and unwieldy

for large-scale implementation (Corrigan et al., 2012). However, contact need not be in

person, and a variety of media may be employed using narratives and perspective-taking

strategies to induce similar effects as interpersonal contact (Mann & Himelein, 2008).

Narratives are often used to reduce stigma by simulating indirect contact through

videos, websites, or other mediated communications (Dalky, 2012). Research suggests

that narratives reduce counter-arguing of persuasive messages and function similarly to

observational learning by viewing the behavior of characters (Bilandzic & Busselle,

2013). Wood and Wahl (2006) reported that when personal stories were included during

educational programing about mental illness, both attitudinal and desired social distance

scores greatly improved. Corrigan et al. (2007) found videos that contained personal

narratives as opposed to strictly educational information produced greater increases in

positive attitudes regarding individuals with mental illnesses.

Health narratives are particularly useful when the goal of communication is to

change stigma toward a group or to influence perceived social norms (Green, 2006;

Hinyard & Kreuter, 2007). Personal stories, or narratives that provide perspective about

an individual's health circumstances and experiences, are known to influence patient

decisions (Bekker et al., 2013). For example, Hopfer (2012) found that inclusion of

personal narratives about HPV vaccination nearly doubled the likelihood of participants

getting the vaccine themselves. First-person narratives are of particular interest in this study because they most closely resemble interpersonal contact through vicarious communication experiences (Mann & Himelein, 2008). Experimental participants reviewed first-person narratives in addition to educational instruction on abnormal psychology conditions, and control groups received only the educational materials. This study found that the inclusion of first-person narratives significantly decreased stigmatized beliefs as measured by social distance preferences more than education-only lesson plans (Mann & Himelein, 2008).

These promising results from studies using first-person narratives have room for expansion. Little research has employed online social networking sites as potential channels for stigma-reduction messages. Much of the literature on social media and mental illness focuses on the direct benefits of message producers and receivers in topic-dedicated networks, such as discussion boards and forums. The current study aims to utilize social media networks to investigate potential effects of personal narratives on public attitudes about mental illness.

Although infrequently discussed in the same vein as long-form narratives, testimonials and public service announcements are considered narratives under the broad definition of the format (Moyer-Gusé, 2008). Few studies have looked at short, user-generated health narratives in terms of their potential for influencing health attitudes and beliefs. However, the presence of user-generated narratives is well supported in studies of illness narratives found online (Han & Wiley, 2013). The focus of research on personal narratives is typically concerned with the emotional and physical outcomes experienced by message creators in social network contexts (Han & Wiley, 2013). Further research

has focused on how these messages affect other members of online communities in terms of emotional and physical outcomes experienced when someone reads narratives online (Burleson, 2009; Kellas et al., 2015). However, less attention has been paid to the indirect audiences that may view these messages as a result of social sharing or incidental exposure online. This dissertation project is interested in understanding how unintended audiences, or those beyond the initial communication interaction, process social media messages and how this processing may influence attitudes about mental illness.

**Summary**

Social media offer a middle ground between mass-mediated educational messages and interpersonal interaction with individuals who have a mental illness. If online messages can incorporate characteristics of interpersonal interactions, it may be possible to reduce stigma via social media messages. In addition, the ability to share and distribute these messages may overcome the inherent weakness of using interpersonal approaches for reducing stigma. This study proposes that user-generated social media messages may create similar effects as interpersonal interactions reported in previous studies of mental illness stigma.

This project attempts to build upon scholarly work by integrating the constructs of the elaboration likelihood model (ELM; Petty & Cacioppo, 1981) with the affordances of social media, online credibility, and narrative structures of social media messages. The ELM posits that the amount of elaboration, or thinking a person does about a message, directly influences persuasive outcomes. Message, source, and individual variables influence the amount of elaboration about a message. This model was chosen for its ability to include affective variables, such as empathy, in combination with the source,

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message, and individual characteristics typical of persuasion contexts. The second chapter of this dissertation contains a more thorough review of the ELM.

## Organization of the Dissertation

This dissertation is organized into five chapters. The second chapter provides the theoretical perspective, which discusses the proposed dual-model of social media message processing. I outline the elaboration likelihood model (Petty & Cacioppo, 1986) and review relevant perspectives from narrative communication and social media affordances.

The third chapter contains the pilot study and the first experiment, which tests the role of empathy in anti-stigma messages on social network sites. The fourth chapter compromises the second experiment, which incorporates apomediary relationship, endorsement, and other social media variables. The fifth and final chapter is a conclusion, which connects my findings to the theoretical foundations of my model, implications for practice, and provides suggestions for future research.

# CHAPTER TWO: THEORETICAL PERSPECTIVE

The goal of this dissertation is to explain how individuals process social media messages about mental illness and to reveal how the nature of this processing may influence stigmatized attitudes. Research on persuasion theories, social media characteristics, and narrative perspective-taking informed the construction of the proposed model tested in this dissertation project. Each of these unique research areas contributed propositions to my overall research agenda, but more importantly, each helped illuminate what relationships may exist among the variables in this communication context. I built on the foundations of dual-processing approaches to persuasion by integrating the unique features of social media and personal narratives online. The following chapter foreshadows this process by reviewing the main assumptions of dual-processing approaches, explaining the nature of message creation and sharing online, predicting why individuals may or may not be motivated to consume these messages online, exploring what happens during message processing, and detailing the outcomes associated with message processing.

Central to my study is the concept of attitudes. Attitudes are the main target of many stigma-reduction efforts (see, for example, Corrigan et al., 2014; Dalky, 2012; Parcesepe & Cabassa, 2013). If stigma is conceptualized as the collection of attitudes about an attribute (ex: mental illness) as defined by Goffman (1963), it follows that changing underlying attitudes could change the nature or extent of stigmatization. In general, attitudes are defined as the overall valence of beliefs about an object, such as a person, place, or thing (Petty, Ostrom, & Brock, 1981). Fishbein and Ajzen (1975) argued that attitudes are a "function of salient beliefs at a given point in time" (p. 222).

This conceptualization allows attitudes to be measured by asking a series of belief questions that are used to quantify this key persuasion variable (Himmelfarb, 1993; Petty et al., 1981). Eagly and Chaiken (1993) further proposed that beliefs are developed and modified whenever individuals learn information about objects, which suggests that attitudes can change as a result of information exposure (Petty et al., 1981). Both direct, personal experiences and indirect, mediated exposure to attitude objects may provide the information that leads to attitude change (Eagly & Chaiken, 1993). This suggests that the phenomenon of interest—viewing a personal narrative about mental illness on a social network—has the power to influence attitudes. Details about the specific attitudes of interest to this study are reviewed later in this chapter. There are a variety of approaches to understanding attitude formation, and dual-processing models are prominent frameworks in media effects studies.

### Dual-Processing Approach

Dual-processing approaches to persuasion examine the level of cognitive effort associated with message consumption. Unlike previous research in the tradition of the cognitive-response approach, dual-processing models added the possibility of individuals expending little cognitive effort to reach a conclusion about a message (Bohner & Wanke, 2002). The elaboration likelihood model (ELM; Petty & Cacioppo, 1981) and the heuristic-systematic model (HSM; Chaiken, 1987) remain the two most commonly used dual-processing models. These two models share several theoretical propositions. Both models examine cognitive processes related to message consumption that range from low effort to high effort. High-effort thinking is associated with issue-relevant cognitions about the message, which is influenced by an individual's motivation and ability to

process the message (Chaiken, 1987; Petty & Cacioppo, 1986). Low-effort thinking is associated with a lack of issue-relevant cognitions about the content of the message and often employs heuristic shortcuts in message responses (Chaiken, 1987; Petty & Cacioppo, 1986). Heuristic shortcuts are simple decision rules that can be applied to judgments about message content and sources (Petty, 2013). For example, attractive sources are often likeable and assumed to be trustworthy based on a likeability heuristic (Bohner & Wanke, 2002).

Both models assume that a combination of individual characteristics and message attributes determine the particular path one travels during the persuasion process (Bohner & Wanke, 2002). In addition, both models suggest that high-effort processing (central-route and systematic) leads to attitudes that are more stable over time, resilient to future argumentation, and more closely associated with behavior than low-effort processing (peripheral-route and heuristic) (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). Both models also posit that message-related variables can serve multiple roles in persuasion. This means that any variable, such as source expertise, might function as a peripheral-processing cue or a central-processing argument depending on the characteristics of the individual, message, and topic (Petty & Cacioppo, 1986).

Although similar in their theoretical foundations, these two models differ in several ways. First, the ELM's peripheral route encompasses mechanisms beyond heuristic cues, such as affective responses to message processing (Bohner & Wanke, 2002). The HSM mainly associates heuristic cues with low-effort cognitive process (Eagly & Chaiken, 1993). Further, the ELM assumes that individuals are motivated to hold correct attitudes (Petty & Cacioppo, 1986). The idea of correct attitudes is rooted in

Festinger's (1950) work on informal social communication. An individual evaluates the correctness of his or her attitude based on the factual reality of a situation and/or the extent to which she perceives that her beliefs are aligned with others in a particular social group (Festinger, 1950). The extent to which factual reality or social congruence are used to evaluate correctness is context-dependent and often jointly assessed (Festinger, 1950). In contrast, the HSM suggests several possible motivations, including a sufficiency principle that claims individuals try to obtain sufficient confidence in their attitudes (Eagly & Chaiken, 1993).

Lastly, the HSM suggests that heuristic and systematic processes may interact in a variety of ways that are not necessarily detractive of each other (Bohner et al., 1995). Although many researchers suggest that there is a rigid tradeoff between the routes of the ELM (Petty, 2013), work by the model's creators clarifies that the central and peripheral routes may occur simultaneously (Petty & Wegener, 1998). They suggest that the influence of each route changes, but a stronger influence of one does not mean that the other route did not activate (Petty, 2013; Petty & Wegener, 1998).

This project uses the ELM as a theoretical basis for several reasons. Mood and affect, such as empathy, are known to influence outcomes of stigma-reduction interventions (for examples, see Batson et al., 2002; Chung & Slater, 2012; Cutler et al., 2009), and this type of variable is valuable to consider in the context of the current project. The allowance for affective variables is more simply defined when using the ELM than the HSM approach. In addition, holding correct attitudes, whether factual or alignment of one's beliefs with that of others in a social group, may serve an important role in this research context. In particular, the alignment with social group beliefs may be

at work when considering the impact of social groups online. The following sections discuss the ELM in more detail and present the main theoretical propositions guiding this project.

## Elaboration Likelihood Model

Petty and Cacioppo (1981) developed the Elaboration Likelihood Model (ELM) of persuasion as a framework to examine the combined merits of several discoveries in attitude-change research. The heart of this model lies in the two routes proposed as pathways to persuasion. Central-route processing involves careful scrutiny of information contained in a message and often focuses on the evaluation of arguments made in the communication (Petty, 1994). Use of the central route is associated with stronger attitudinal beliefs, persistence of attitude change, and an increased likelihood of leading to subsequent behaviors (Petty, Haugtvedt, & Smith, 1995). Peripheral-route processing involves attention to simple cues, such as perceived source credibility, that trigger heuristic judgments about the message (Petty, Cacioppo, & Heesacker, 1981). The concept of heuristics is based on the idea that individuals are "cognitive misers" (Taylor, 1981, p. 194) who attempt to use the shortest path possible to make decisions, especially when they are not particularly motivated to spend cognitive energy on that decision. Using the peripheral route is associated with weaker attitudes that typically fade with time and are weak against counter-arguments (Petty, Briñol, & Priester, 2009).

Although the theory posits two distinct routes to persuasion, these pathways are conceptualized as a continuum and not a dichotomy (Petty, 2013; Petty & Cacioppo, 1986). This continuum can be conceptualized between no thought about issue-relevant information (peripheral route) to complete thought of all issue-relevant information

(central route). An individual's motivation to process the message and ability to do so influence to what extent each route contributes to message processing. This suggests that, when effort is low, peripheral cues have more influence on message processing, and when effort is high, issue-relevant information is more influential (Petty, 2013).

The ELM is frequently used to evaluate audience reactions to persuasive messages, including in health contexts. Freeman and Spyridakis (2004) examined evaluations of health-related websites to understand what cues were used in peripheral-route processing. Presence of a street address increased perceived credibility of websites as reported by study participants. The authors posited that this variable contributed to evaluations made by participants who used peripheral processing when browsing websites. Dutta (2007) researched message elaboration by using a measure of interest in health to predict likelihood of deeply processing health messages. He found that higher interest in health topics was associated with higher levels of elaboration of health-related messages. Similar results were found in a study that explicated the relationship between higher personal relevance of HIV/AIDS information and an increased likelihood of central-route processing (Igartua, Cheng, & Lopes, 2003).

A main assumption of the ELM is that any one variable can serve multiple roles in the attitude formation process (Petty & Wegener, 1999). It is commonly misunderstood that message characteristics are associated with central processing and that source characteristics are peripheral cues (Petty & Wegener, 1999). However, Petty and Cacioppo (1986) asserted that any particular variable might contribute to the persuasion process by serving as an argument, serving as a peripheral cue, influencing extent of issue-relevant thinking, or biasing issue-relevant thinking. Given this important

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assumption, it is vital that the conditions under which variables serve these different roles be investigated. Measuring the variables unique to this project and analyzing interactions among relevant concepts will help reveal the different roles of these variables.

## Motivation to Process a Message

The ELM associates motivation and ability to process a message as components of overall elaboration likelihood. Traditionally, motivation to think about a message is influenced by two main variables: personal relevance/involvement with the issue and need for cognition (Petty et al., 2009). Involvement with the message issue is conceptualized as an individual's perception of the intrinsic importance or the extent to which an issue will impact one's life (Petty & Cacioppo, 1986). Previous studies in health contexts suggest that this variable may be defined as reported interest in health issues (Dutta, 2007; Freeman & Spyridakis, 2004), personal experience with the health condition (Boyd et al., 2010; Freeman & Spyridakis, 2004), and knowing someone who has experienced the health issue (Boyd et al., 2010). I will measure each of these conceptualizations by adapting scales created in previous studies to the context of this project.

The ELM provides predictions for how low- and high-issue involvement may influence message processing. Higher issue involvement leads to more motivation to process the message, which is associated with increased message elaborations and central-route processing (Petty & Cacioppo, 1986). If individuals have low issue involvement, and thereby low motivation to process the message, they should have less cognition about the message.

Need for cognition is defined as an individual's desire to think and enjoyment of thinking deeply about issues (Petty & Cacioppo, 1986). This variable represents a general tendency of an individual to engage in effortful thinking across different communication contexts (Cacioppo & Petty, 1982). The ELM provides relationships between an individual's need for cognition and motivation to process messages. An individual high in need for cognition will be more motivated to process messages in general, which should lead to increased elaborations about messages (Petty & Cacioppo, 1986). This tendency should apply to a broad range of message topics. Although clearly a part of the conceptual model proposed later in this chapter, this dissertation will not incorporate it into the experimental model in order to simplify the research project and narrow the scope to the variables of interest. In addition, need for cognition should not be as relevant when viewing short, narrative messages like those individuals are likely to come across on social media.

## Message Processing

Message elaboration is conceptualized as "the extent to which a person thinks about issue-relevant arguments contained in a message" (Petty & Cacioppo, 1986, p. 128). This important variable of the ELM is a combination of one's motivation to think about a message and ability to do so (Petty, Cacioppo, & Goldman, 1981). In short, this variable signifies the level of cognitive effort an individual uses when processing a message (Petty & Cacioppo, 1981). It can be conceptualized as an overall elaboration amount, but can also be broken into subcategories, such as thoughts about the message, source, or topic. Message elaboration often mediates the effects of other variables

involved in the persuasive process, and any study using the ELM must consider how elaboration influences message outcomes (Petty & Cacioppo, 1986).

The concept of elaboration is commonly measured by self-reports and thought-listing tasks. Both measures are proposed in the pilot study for this dissertation for several reasons. First, elaboration is an important variable to measure in ELM studies. It would be beneficial to increase confidence in the results of this study by providing multiple measures and conducting validity checks for this variable (Chaffee, 2009). Elaboration often mediates the effect of other ELM variables, and it is important to detect small variations, if possible. A combination of self-reports on Likert-type measures and thought-listing measures in the pilot study should increase the internal validity of this variable and provide some information beyond amount of elaboration, such as origin of the thoughts (i.e., directly repeating message arguments versus expanding on message arguments; Cacioppo et al., 1981). It is important to note that thought-listing will be collected in the main experiments for the purpose of future research, but these data will not be analyzed for this dissertation.

An individual's motivation to process a message directly influences the amount of thinking he or she does about a message and what elements of the message become more important during message processing (Petty & Cacioppo, 1986). These cognitions, or elaborations, determine the outcome of message processing. The following hypothesis draws on the relationship between issue involvement and message processing:

**H1:** Individuals with high-issue involvement (interest, personal experience, and knowing someone) will be more likely to have high elaboration levels following

exposure to personal narrative messages about mental illness messages than individuals with low-issue involvement.

## Outcomes of Message Processing

Previous research suggests that high levels of elaboration lead to the central route of message processing (Petty et al., 1995). When individuals generate numerous thoughts about the message, they are thinking deeply about the issue and focusing cognitive effort into understanding the arguments in the message (Petty et al., 2009). High levels of elaboration lead to attitudes that are stronger and more resilient over time (Petty & Cacioppo, 1986; Petty et al., 2009). In addition, research indicates that stronger attitudes, which are the result of high levels of elaboration, are associated with behaviors both immediately following the message and continued behavior over time (Krosnick & Petty, 1995; Petty & Cacioppo, 1986; Petty et al., 2009). This study used a self-report measure to identify amount of elaboration participants reported after viewing a message.

Given the previous research on the influence of both the amount and valence of message elaboration on persuasion, the following hypothesis and research question are posited:

**H2:** Individuals with high levels of elaboration after exposure to a stimulus messages will report less stigmatized attitudes about mental illness than individuals with low levels of elaboration.

**RQ1:** Which variables proposed in this study align with central and peripheral routes of message processing?

The purpose of this dissertation project is to examine how social media messages might influence stigmatized attitudes about mental illness. The primary outcomes of interest are related to negative beliefs or attitudes about individuals with mental illness and preferred social distance from mentally ill individuals. Attitudes about mental illness will be measured using the Attributional Questionnaire (AQ; Corrigan et al., 2012) and Social Distance Scale (SDS; Boyd et al., 2010) scales. The AQ was developed specifically to measure stigmatizing beliefs about mental illness (Corrigan et al., 2012). The SDS is a measure of social distance preferences concerning mentally ill individuals, such as unwillingness to work with someone with a mental illness (Boyd et al., 2010). Social distance preferences are often used as a measurement of overall attitudes about mental illness, and desire for more distance from individuals with mental illnesses is considered a stigmatized belief (Link et al., 1999). The current study uses both measures of attitudes towards mental illness and social distance preferences, which combined indicate a measure of stigmatizing beliefs and, thereby, attitudes. These attitude measurements will constitute the primary dependent variable in this study, which is attitudes and beliefs about individuals with mental illness.

## Message Quality

Previous studies found that the quality of arguments presented in a message is connected with involvement or elaboration of messages (Petty, Cacioppo, & Heesacker, 1981). Areni and Lutz (1988) conducted an analysis of literature on argument quality and concluded that strength of the argument may be manipulated by altering the nature of the message's quality. This dissertation project used messages that vary in quality to test potential stimuli in a pilot study and to investigate how a difference in message quality

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might influence empathetic responses to mental illness messages online. Petty and Cacioppo (1986) outlined a practice for developing arguments for stimuli messages that is commonly used across disciplines, which is described later for the pilot test of this project.

Argument quality is conceptualized as the perceived quality of an argument in terms of the supporting evidence presented in the message (Areni & Lutz, 1988). Strong arguments, whether positive or negative in valence, are likely to evoke positive thoughts about the message's quality (Park et al., 2007). Weak arguments are more likely to evoke negative thoughts about the message, which often lead to an increase in counterarguments (Park et al., 2007). Counterarguments are generally defined as any thought that directly refutes an argument put forth in the message, usually with an unfavorable valence (Brock, 1967; Cacioppo et al., 1981).

Perceptions of argument and message quality are as important as the message manipulation itself. Perceived message quality will be measured in posttest questionnaires as part of overall message evaluation for all experiments in this project. The following hypotheses are related to the influence of argument quality and message on evaluation of messages and positive attitudes about mentally ill individuals:

**H3:** High-quality messages will be rated more positively in terms of perceived argument and writing quality than low-quality messages.

**H4:** Individuals who report higher perceived message quality will also report less stigmatized attitudes about mental illness than individuals who report lower perceived message quality.

**H5:** High-quality messages will produce more elaboration in participants than low-quality messages.

Researchers manipulate argument quality in order to infer the influence of other variables on the persuasion process (Petty, Wells, & Brock, 1976). This concept will be used to develop messages in the pilot study and will be tested in the first experiment to determine how argument quality influences empathetic responses to a message about mental illness. Results from the pilot study and first experiment will influence which message is manipulated for the full test of the experimental model created for this dissertation project. Message quality is manipulated in the message stimuli as described in the pilot study procedures in the following chapter.

The literature reviewed thus far highlights the underlying concepts key to any application of the ELM. However, the context of user-generated mental illness messages calls for the incorporation of unique variables that require their own set of assumptions and predictions. A review of literature related to the key concepts related to social media messages and mental illness stigma reduction is provided below to better explain how these concepts inform the model proposed by this dissertation project.

## Message Creation and Sharing

Social network sites proliferated with the spread of internet technology. A survey from the Pew Research Center reported that 74% of adults who access the internet use at least one social network site (Duggan & Smith, 2013). The most popular sites used by adults who visit social networks are Facebook (71%), Pinterest (28%), LinkedIn (28%),

Instagram (26%), and Twitter (23%) (Pew, 2014). Although diverse, this set of popular platforms all qualify as social network sites according to the scholarly definition.

A web-based service is considered a social network site if it meets three criteria: 1) requires users to create profiles, 2) manages a list of connections with other users, and 3) allows users to navigate their own and others' connections within the social network platform (boyd & Ellison, 2007). While it is possible to meet strangers on these platforms, the primary purpose is usually to maintain or reinforce existing relationships with people whom users already know (boyd & Ellison, 2007). Much of the scholarly research about social network sites is concerned with interpersonal relationships (Hales, 2009; Wright, 2004), self-presentation (Rosenberg & Egbert, 2011), and social support (Kim et al., 2012; Shaw et al., 2000). However, the ability to traverse connection lists and view interactions users have with other connections exposes individuals to messages beyond those created by friends or acquaintances. Viewing comments, likes, or other content aggregated by friends online is one way that users can be exposed to messages from out-groups or individuals they do not know.

It is important to note that what distinguishes uses and effects from different social networks is not solely based on the individual platform, i.e., Facebook versus Twitter. Instead, many scholars focus on the individual affordances unique to each platform as the motivation for using this technology and as the driver of effects reported in studies (boyd, 2010; Eveland, 2003). This perspective is congruent with the proposition from previous research that the particular social network platform is less important than the capabilities it provides users.

New technology blurs the line between mass and interpersonal communication. Public interpersonal communication, as Walther et al. (2011) call it, is the idea that people use online technology to simultaneously generate mass communication and interpersonal communication messages. The new affordances, or unique characteristics and abilities provided by online platforms, associated with social network sites allow for this intersection of previously separated fields of study. For example, messages on social media are highly replicable and can be easily copied, which allows users to efficiently share information with others (Baym & boyd, 2012). Nearly all social media have this ability, including Twitter's retweet feature and Facebook's share function. This suggests that even if a particular message is intended for a certain group or individual, it is merely a click away from being distributed to another audience. The idea that various social groups intermingle in online spaces makes it increasingly difficult to maintain hard boundaries between communication meant for specific groups and the general public (boyd, 2010). While many messages are intended for a certain audience or a particular individual, the affordances of social media make it possible for broader audiences to view these messages through shares, likes, and perusal of connections' profiles.

Social media is also unique because it is searchable (Baym & boyd, 2012). Individuals now have the autonomy to search for specific information on their own using web technology, which is a unique affordance of social media platforms (boyd, 2010). For example, Tumblr allows users to search for keywords, or tags, to find posts about certain subjects. Searchability may be useful in health contexts that encourage individuals to seek social support.

Research suggests that social media users create content primarily based on first-hand experiences (Stavrositu & Kim, 2015). However, far more individuals are consuming content online than creating it. According to data analyzed from the Pew Internet & American Life Project's 2010 Health Tracking Survey, fewer than 15% of people who reported going online for health information actually created any content (Thackery, Crookston, & West, 2013). A vast majority of individuals who use social networks never create content, but simply share or aggregate what they find (Thackery et al., 2013). Eysenbach's (2008) concept of apomediation suggests that there are key trusted sources, called apomediaries, which point users in the direction of quality content. An apomediary can be any online entity, whether an actual person or a computer program, that establishes itself as a trusted aggregator of information. For example, one may trust the political opinion of a friend who is highly involved in politics and visit her Facebook page for presumably reliable topics and information. These apomediaries, or content sharers and aggregators, essentially provide endorsements by sharing or liking content that appears on their online profiles (Eysenbach, 2008).

Apomediation is common on social networks. For example, an individual user may write a Facebook post that gets shared on others' walls or profiles via the share function of the platform. Sharing the post causes the message to be passed to other users, and people outside of the original message creator's social circle may view it. This common process online presents new possibilities for message exposure and influence. The majority of health research online deals with how individuals seeking messages from peers react to content, such as message boards created by and for individuals with certain diseases (Fan et al., 2014; Sillence, 2013; Wang et al., 2008). Less is known about how

messages created by people with first-hand experience influence individuals who are not

specifically seeking this content, but instead chance upon this information via social

network sharing. We know little about how messages encountered via the apomediation

process on social networks may influence attitudes about health topics. This dissertation

project is primarily interested in investigating this phenomenon and shedding light on

how consuming narratives encountered through apomediation may influence attitudes

about mental illness.

### Apomediary Relationship

Apomediaries give cues about a message source or creator because of the nature

of the trust associated with looking to them for information (Hewitt-Taylor & Bond,

2012). Similar to previous studies, I conceptualize apomediaries in the context of this

study as users on social network sites who share content created by other users with the

purpose of recommending that their online connections view the information. This

process of sharing content from other users is common on most social media platforms.

Facebook users share approximately 4.75 billion pieces of content, such as statuses or

images from other Facebook users, each day (Zephoria, 2015).

The sheer amount of content sharing on social media is clear. However, a user's

relationship with each apomediary who shares a message can vary between close,

intimate relationships and distant acquaintances. This variance in relationship is often

referred to as tie strength (Granovetter, 1983). A weak tie is defined as an acquaintance

who is not deeply connected to an individual's social circle (Granovetter, 1983). In

contrast, a strong tie is a close friend who is more involved with an individual's life and

may have more social influence (Granovetter, 1983). The concept of tie strength is often

studied in the context of social network theory (Wasserman & Faust, 1994), which is beyond the scope of this project. However, the distinction between close friends and distance acquaintances may be of use in determining the impact of perceived relationship with apomediaries on motivation and message processing.

If the apomediary is a close friend, users may be more likely to pay closer attention to social media posts as a result of trust and social influence. The concept of strong social ties might be related to the idea that individuals want to align beliefs with that of a particular social group (Festinger, 1950). It may be the case that a user is motivated to process messages from strong ties so that he can evaluate how his beliefs align with those of his close social circle. On the other hand, weak ties are known to expose individuals to ideas or topics that tight-knit social groups are not discussing (Granovetter, 1983). This means that weak-tie acquaintances may diversify worldviews or interest in topics because they provide exposure to information that an individual would not otherwise encounter. Little research has been conducted that explicates the relationship between apomediary relationship strength and social media message processing, which makes it is difficult to make accurate predictions. Therefore, a research question will target the influence of apomediary relationship on motivation to process a message on social media:

> **RQ2:** How does apomediary relationship influence motivation to process a
> mental illness message on social media?

Previous apomediation studies suggest that there may be a relationship between trust in the sharer and trust in the message (Eysenbach, 2008). I propose building on this

assumption by adding that an individual might evaluate a message based on both her assessment of the apomediary and the original creator of the message. More specifically, I posit that a strong perceived apomediary relationship may lead to higher levels of source credibility and more positive message evaluation. The following hypotheses will examine the relationship among perceived apomediary relationship strength and message evaluation in this study:

> **H6:** Individuals who report a strong apomediary relationship will have more message elaboration than individuals who report a weak apomediary relationship.

## Source Credibility

Any investigation of persuasive content must consider how source credibility might influence message evaluations. Source credibility is typically defined as the trustworthiness and expertise of a message creator (Hilligoss & Rieh, 2008; Hovland & Weiss, 1951).  Although few people create message on the internet, many people create messages on social media. For example, there are an estimated 293,000 status updates created each day by Facebook users (Zephoria, 2015). Social media users as message creators are of particular interest due to the growing desire of individuals to hear from people like themselves as opposed to official organizations or websites (Ziebland & Wyke, 2012). This project is particularly interested in how individuals respond to first-person narratives produced and distributed by users on social media networks, which suggests that original message creator credibility is a factor to consider.

Chaffee (1986) suggested that individuals often seek sources who are like them. In addition, individuals value lay-knowledge and experiences when evaluating source

credibility (Chaffee, 1986; Wynne, 1996). The homophily, or perceived similarity, of

sources is often related to higher credibility ratings (Wang et al., 2008). For example,

readers of a user-led breast cancer forum reported that homophily was an important

source characteristic (Sillence, 2013). Participants reported that they wanted to find

someone who was "in the same boat" or had dealt with similar health issues. This same

study reported that more than half of advice contained in the forum came from the

personal experience of users (Sillence, 2013).

Credibility of message creators is a variable in many studies of attitudes and

persuasion (Freeman & Spyridakis, 2004; Priester & Petty, 1995). In the context of user-

generated content online, homophily is often used as a source credibility heuristic (Hu &

Sundar, 2010). The context of mental illness presents a complication in the idea of

homophily with a source. Users may be unlikely to identify message creators as

homophilous because mental illness status may trigger an out-group evaluation of the

source. It may be the case that other variables, such as perceived expertise or credibility,

function in similar ways for message creators who disclose mental illness status.

Online health narratives often conceptualize the source of a post as the person

who authored or created the message (Neubam & Krämer, 2014). This is in line with

previous research that suggests message receivers use source cues in processing legacy

media messages (Hovland & Weiss, 1951).  If a source is judged as credible, it is likely

that the message itself will also be evaluated as credible (Metzger & Flanagin, 2013).

Traditionally, source credibility is rooted in judgments about trustworthiness and

expertise (Frewer et al., 1997; Hovland & Weiss, 1951; Jones et al., 2003).  However,

cues to source credibility vary depending on the context of communication and availability of cues (Hilligoss & Rieh, 2008).

The context of user-generated mental illness messages on social media seems better suited for evaluations of credibility than homophily for several reasons. First, homophily is a very complex construct that may incorporate perceptions of demographics, behaviors, attitudes, and social status of a message creator (McPherson et al., 2001). Information related to variables that might influence perceived similar may not be readily available within social media messages. The message creator may have privacy settings in place so that users outside of their connections cannot see identifying information, such as age, gender, or interests. In addition, the context of mental illness may not be conducive to evoking high levels of perceived similarity with the message creator. If an individual does not have experience with a mental illness, he might be less likely to identify with a source he perceives to belong to that group. Therefore, this study proposes that message creator credibility and apomediary relationship will be more influential for message processing than source homophily.

Perceived knowledge and expertise of a creator may influence source credibility in this project context. Laypersons, or individuals who are not considered formally trained in a topic, may be judged as having a level of expertise through experiential knowledge.  Experiential knowledge is conceptualized as expertise gained through first-hand experiences and is often idiosyncratic of the individual (Gregory & Miller, 2000). Research suggests that social media users create content primarily based on first-hand experiences (Stavrositu & Kim, 2015). Further, most health contexts consider diagnosis of a certain disease or condition as experiential knowledge that signals some level of

expertise about the health issue (Baker, 2006). Following this logic, individuals who disclose mental illness status should be evaluated as having some level of knowledge and expertise about the topic. The following hypotheses are based on previous research on message creator credibility (Hilligoss & Rieh, 2008; Metzger & Flanagin, 2013) and are informed by the assumptions proposed by the model:

**H7:** Individuals who report a strong apomediary relationship will report higher message creator credibility than individuals who report a weak apomediary relationship.

**H8:** Individuals will report higher perceived credibility for message creators who have a mental illness than creators who do not identify as having a mental illness.

In many studies, source credibility is considered a heuristic cue for message processing (Petty et al., 1981). The proposed model incorporates this assumption by analyzing message creator credibility in the form of mental illness disclosure as a peripheral cue in the ELM framework:

**H9:** Mental illness status of message creators will have greater influence on mental illness attitudes under low elaboration conditions than high elaboration conditions.

## Message Commentary

Endorsement heuristics are defined as the assessment of a message being endorsed or recommended by someone else (Hilligoss & Rieh, 2008; Rieh & Danielson, 2007). Popularity of a social media post, for example, can be considered an endorsement heuristic because an individual might apply the rule that if lots of people like it, then the

message is good quality (Hilligoss & Rieh, 2008). Likes or shares are commonly used to cue endorsement, but these cues are not the only endorsements available on social media. A common affordance of social network sites is adding a comment to links or posts shared on a personal profile. For example, Twitter allows users to add a comment to a retweet, and Facebook invites users to "say something about this" when sharing a post from another user. Although a common affordance of various social network sites, this type of endorsement is rarely examined in persuasive contexts. To avoid confusion with the common label of "comments" to describe the string of discussion following a social media post, the comments an apomediary make when sharing a social media message are called endorsements in this dissertation.

This study proposes that the valence of apomediary endorsements, or whether endorsements contain additional thoughts that are either in agreement with the message or in opposition to the message, will directly influence a user's evaluation of the message. This assumption is rooted in previous research that suggests an individual uses cues from the apomediary to assess how she should evaluate a message, especially when not particularly motivated to think deeply about its content (Hilligoss & Rieh, 2008). However, apomediary endorsements may also cue individuals with high motivation to process a message to pay attention to certain attributes of the message. In other words, a user might focus on certain message attributes because the apomediary directed her attention to them. The influence of endorsements should be predictable based on what researchers would expect from a dual-processing approach to attitude formation. The following hypotheses and research questions are based on the proposed influence of endorsement comments on message processing and outcomes:

**H10:** Endorsements from an apomediary (both positive and negative) will have greater influence on mental illness attitudes under low-elaboration conditions than high-elaboration conditions.

**H11:** Apomediary endorsements will have greater influence on mental illness attitudes when issue involvement is low than when issue involvement is high.

**H12:** Individuals who view positive endorsements will report more positive attitudes about mental illness than individuals who view negative endorsements.

**RQ4:** How does issue involvement influence the impact of apomediary endorsements on message processing and outcomes?

**RQ5:** How does apomediary relationship influence the impact of apomediary endorsement on message processing and outcomes?

Endorsement heuristic research also suggests that individuals who are recommended by others are perceived as more credible than those without endorsements (Metzger & Flanagin, 2013). In the context of this study, it is proposed that comments from an apomediary may influence the perceived credibility of a message creator via the perceived endorsement of the post. This effect should be stronger for individuals with low-issue involvement than individuals with high-issue involvement, because it should serve as a peripheral cue for users who do not want to spend cognitive effort on the message itself. The following hypothesis is based on the proposed influence of endorsement comments on source credibility judgments related to the message creator:

**H13:** Individuals who view positive endorsements will report higher levels

of message creator credibility than individuals who view negative or no

endorsement messages.

## Narratives

The apomediation process allows personal narratives posted online to spread far

beyond the message creator's social circle. Media studies often examine narratives in the

form of movies, television, or other fairly long-form productions. Research suggests that

narratives reduce counterarguing of persuasive messages and function similarly to

observational learning by observing the behavior of characters (Bilandzic & Busselle,

2013). Health narratives are particularly useful when the goal of communication is to

change stigma towards a group or influence perceived social norms (Green, 2006;

Hinyard & Kreuter, 2007). Personal stories, or narratives that provide perspective about

an individual's health circumstances and experiences, are known to influence patient

decisions (Bekker et al., 2013). For example, Hopfer (2012) found that inclusion of both

personal narratives from peers and expert perspectives from doctors in messages in an

experiment about HPV vaccination resulted in participants being twice as likely to report

that they would get the vaccine themselves two months after message exposure.

Although infrequently discussed in the same vein as long-form narratives,

testimonials and public service announcements are considered narratives under the broad

definition of the format (Moyer-Gusé, 2008). Few studies look at short, peer-generated

health narratives in terms of their potential for influencing health attitudes and beliefs.

However, the presence of peer-generated narratives is well supported in studies of illness

narratives accessed online (Han & Wiley, 2013). The focus of research on personal

narratives is typically concerned with the emotional and physical outcomes experienced by message creators in social network contexts (Han & Wiley, 2013). Sharing one's story online is known to increase positive health outcomes and improve quality of life, especially for individuals who have stigmatized health conditions (Kim et al., 2012).

Research has focused on how direct receivers of these messages, such as friends who listened to personal stories, are affected by them (Burleson, 2009). For example, Kellas et al. (2014) investigated how individuals who listened to someone's experience with a personal difficulty were affected. The study found that listeners were likely to report negative affective states, which contributed to empathy for the teller or frustration at being unable to console them (Kellas et al., 2014).

Few studies have examined the effects peer narratives have on broader public audiences on social networks. One explanation for this lack of attention might be that some concepts inherent to message source and message characteristics become convoluted in online settings (Rieh & Danielson, 2007). Source evaluation, for example, is a complex issue in any media study. A message source in online settings can be perceived as an individual creator of the message, an apomediary who posted the message, and/or the platform being used. For the purpose of this dissertation project, the message creator is considered the source of the message. Source credibility in this project applies solely to the original message creator. The message apomediary, or the person who shares the message online, serves a different role in message processing. Instead of credibility variables, message apomediaries are associated with relational distance and trust. These distinctions are discussed later in this chapter.

The focus of this dissertation project is not on the message creation and sharing phase of the proposed model. It is assumed that messages are created and shared online. Instead, this project focuses on what happens when another user comes across a shared message in a social network environment. As discussed in the ELM literature, motivation to think about a message influences many aspects of message processing. I propose adding apomediary relationship to the traditional ELM variables, issue involvement and need for cognition, as an influencer of motivation to process a message encountered on social media.

## Empathy

Empathy is a known driver of narrative persuasion and is often used in counter-stigma campaigns (Murman et al., 2014; Papish et al., 2013). Empathy is defined as an emotional response consistent with the perspective of another person and is triggered by imagining how he or she must feel in a given situation (Batson et al., 1997). Empathy is known to contribute to positive attitudes about stigmatized individuals. For example, an increase in empathetic feelings toward a young woman with AIDS in a taped interview was associated with less blame placed on the young woman and more concern about the welfare of people with AIDS (Batson et al., 1997). Oliver et al. (2012) reported that, when participants had high compassion (a measure equated to empathy) for individuals described as immigrants in news stories, participants were more likely to report positive attitudes, such as agreeing that society should do more to help immigrants.

Prior research suggests that empathy results from identification with a narrative character (Chung & Slater, 2013). Identification refers to the extent to which an individual takes a character's perspective, which leads to empathy with the character and

adoption of his point of view or goals (Cohen, 2001). If identification is high, an

individual is more likely to adjust her attitudes toward those of the character(s) with

whom she identifies. Identification with characters also influences normative beliefs

about health, which suggests that this concept may influence changes in attitudes about

health behaviors and policies when identification is high (Niederdeppe et al., 2014).

Empathy, or feeling as if one understands what a character in a narrative is feeling, is

commonly associated with identification (Cohen, 2001). Other components of

identification, such as absorption in the narrative and demographic/psychographic

similarity with the character (Cohen, 2001) may not be applicable to some persuasive

situations. In fact, Slater and Rouner (2002) suggested that empathy may be more

important than overall identification in persuasive contexts when the goal of an

intervention does not involve learning specific behaviors from narrative characters. In

this dissertation, it seems appropriate to focus on empathy rather than identification since

the goal of this dissertation is to explicate the influence of social media narratives on

attitudes about individuals with mental illness and not any particular behavior.

     Perspective-taking is often considered an element of identification and is defined

as a vicarious process that allows an individual to view a situation or experience from the

view of another person (Cohen, 1991). Previous research on stigmatized conditions

suggested that narratives that evoke perspective-taking have an indirect effect on

perceptions of the stigmatized group (Chung & Slater, 2013). Many studies use empathy

and perspective-taking interchangeably (Chung & Slater, 2013). Some researchers

highlight a nuanced difference between the two by explaining that perspective-taking is

the cognitive process that precedes the affective state of empathy (Batson, Ahmad, &

Stocks, 2004). For the purpose of this dissertation, I conceptualize perspective-taking as the cognitive act of considering another person's viewpoint. This concept is operationalized in the experimental projects as instructions to think about the message creator's perspective. I conceptualize empathy as the emotional state congruent with the message creator's plight. This concept is measured using empathy scales in posttest questionnaires to measure how empathetic individuals are concerning the message creator's narrative.

Empathy is often used for interventions addressing mental illness stigma, which is why it is predicted to play a role in the proposed model. Mann and Himelein (2008) conducted an experiment to test curriculum-based intervention using a humanizing, or empathy-based, approach to teaching a psychopathology college course. The humanizing approach included reading first-person narratives from individuals who had depression, schizophrenia, and bipolar disorder. Participants in the humanizing class design reported lower stigmatized attitudes about mental illness, such as less desire to maintain social distance, than individuals in the traditional, non-empathetic instruction approach.

Research indicates that, when empathetic feelings are evoked for an individual whose stigmatized status is relevant to their plight, empathy for the entire stigmatized group is also produced (Batson et al., 1997; Dovidio et al., 1990; Oliver et al., 2012). In addition, effects of empathy activation on attitude change endure beyond the initial emotional state and have been found to persist for weeks beyond experimental procedures (Batson et al., 1995; Batson et al., 1997). Researchers often use perspective-taking prompts or stimuli to evoke empathetic responses. Research reported that when participants engage in perspective taking they often have less stigmatized views of the

out-group member than individuals who did not engage in perspective taking (Chung & Slater, 2013). Following this tradition, the current project will manipulate perspective-taking stimuli and message instructions as cues to evoke empathy in study participants. Empathetic response to messages will be measured in posttest questionnaires in order to quantify the actual levels of empathy experienced by the participants.

Although some researchers suggest that emotional appeals and cognitive appeals are separate processes (Batson et al., 1997), the ELM posits that affective state and cognitions related to one's emotions influence message processing the same way any other psychological variable does (Burleson, 2009; Campbell & Babrow, 2004; Petty & Cacioppo, 1986). In other words, empathy may result from elaborations about the message or putting oneself in another's position. This suggests that empathy may be added as a variable in an ELM-based study and that the effects of empathetic feelings may be attributed to cognitive processes associated with routes to persuasion. In fact, previous research reported that emotional states, such as fear, could serve as message arguments that increase elaborations about persuasive messages (Petty et al., 1988; Witte, 1992). The following hypotheses are based on the role of empathy in the proposed model:

**H14:** Individuals exposed to perspective-taking instructions will have higher empathy scores than individuals who view objective instructions.

**H15:** Individuals with higher elaboration after viewing a message about mental illness will have higher empathy than individuals with lower elaboration.

**H16:** Individuals with higher empathy scores will have less stigmatized attitudes towards individuals with mental illness than individuals with lower empathy scores.

**RQ5:** How does perceived argument quality influence empathetic responses to a message about mental illness?

The literature reviewed thus far in this chapter lays the foundation for the examination of narrative concepts and social media affordances in the context of a dual-processing approach to mental illness messages online. The following proposed model draws from the theoretical foundations of the ELM and incorporates the variables previously reviewed in this chapter that may play a role in user-generated mental illness narratives on social networks.

## Conceptual Model Overview

The conceptual model proposed by this dissertation project combines the foundation of the ELM with the social media characteristics of the phenomenon of interest. In general, this model follows four phases: message creation and sharing, motivation to process the message, message processing, and outcomes of message processing. These stages are aligned with the general flow of dual-processing approaches, but incorporate assumptions based on the communication context. Figure 1.1 outlines the conceptual model of mental illness messages on social networks.

Several assumptions about the nature of creating and sharing personal stories about mental illness are central to this model. First, I assume that a person posts a message about mental illness on a social media site. This person is the message creator and is considered the source of the message. For example, someone posts about a negative experience she had when disclosing to a friend that she has a mental illness. This post is a personal narrative about her experience with mental illness, and the author is the

source of the message. This person is termed the message creator for the remainder of this dissertation.
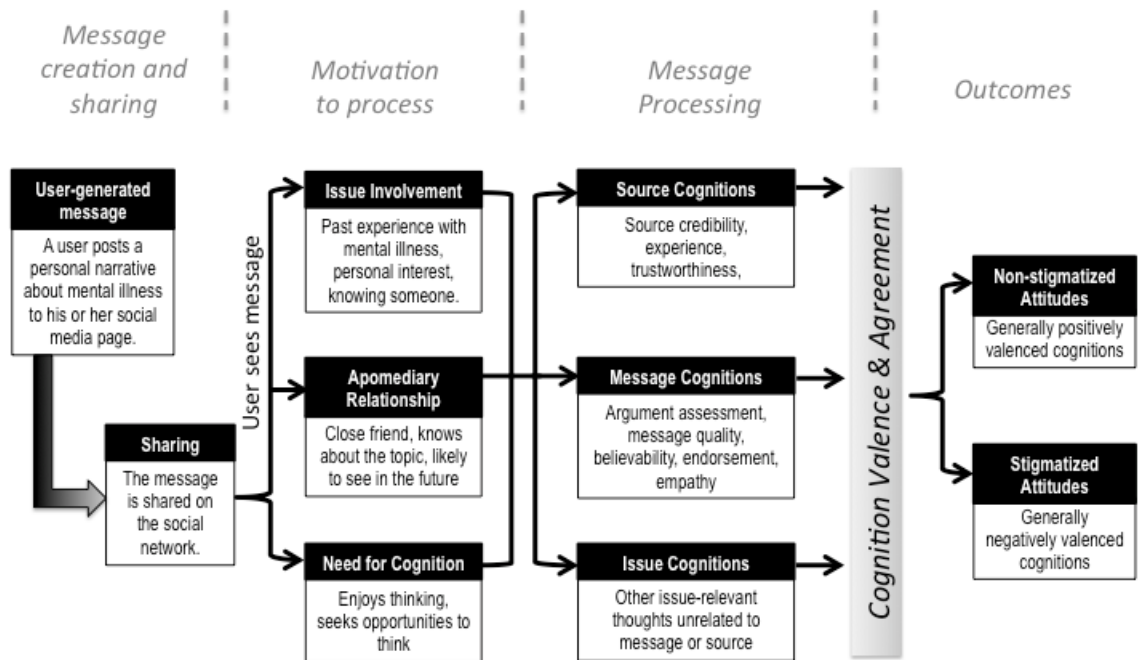


*Figure 1.1* Conceptual model of mental illness message on social networks.

Other individuals may share this message on social media using the unique sharing features of any particular site. By sharing, I mean that another user who is not the message creator posts a copy of the message to his or her own social media profile page. This copy, or share, of the original post retains information about the message creator, but allows the sharer to add comments and spread the message to others. This feature is typical of many social media platforms, such as Facebook's "share" option. Users who share the original posts are called apomediaries. Apomediaries are individuals who aggregate content on social network sites by sharing original posts on their own pages, but they did not create the content of the message (Eysenbach, 2008). An apomediary

may add a comment to the shared post, but he is not considered the source of the

message. Figure 1.2 shows what this type of message sharing looks like on a popular

social media site.
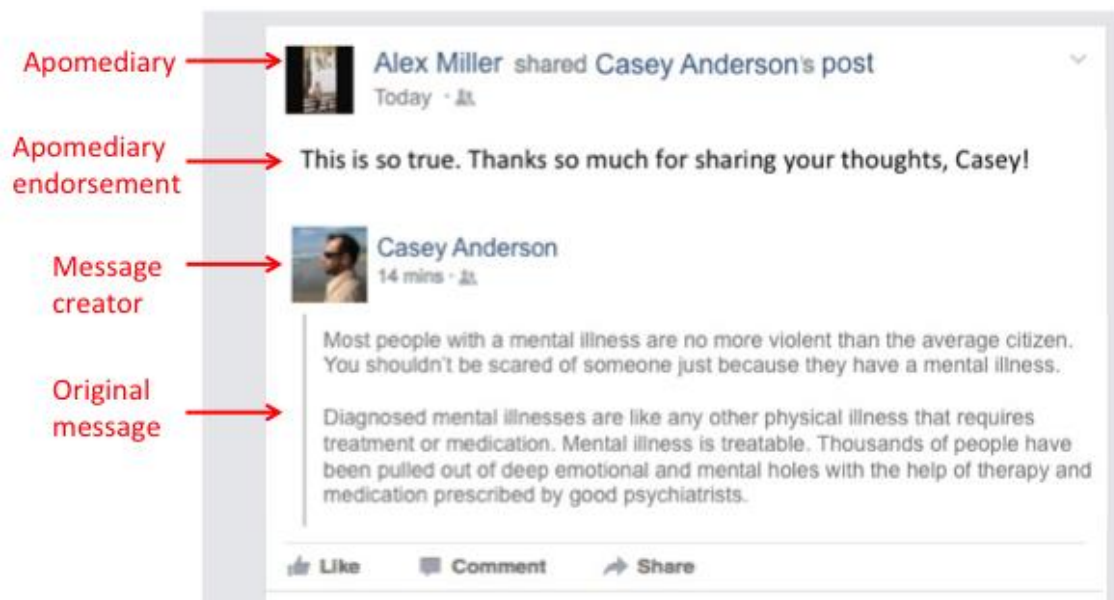


*Figure 1.2.* An example of a Facebook message shared by an apomediary with a positive

endorsement.


Once the message is shared by apomediaries, users outside of the message

creator's social network may view the message. These other users, simply called users for

the purpose of this project, may see the message on social networks. Motivation to

process a message, which is a key element of ELM, becomes important at this point.

Once a user is exposed to the message, she must decide how closely to process the

message. It seems logical that issue involvement plays an important role in persuasive

processing regardless of the channel a message appears in (Perloff, 2000). However,

social network sites offer additional motivators beyond issue involvement, such as social

connections with other site users (Naslund, Grande, Aschbrenner, & Elwyn, 2014).

Characteristics of the apomediary might influence motivation to think about a message.

For example, if a user knows that she might see the friend who shared a message in the near future, she might be more interested in reading the message so that she has a topic of discussion even if she is not personally interested in the topic. This might increase her motivation to process the message when she would otherwise be unmotivated. In contrast, relationships with a message apomediary that is not trusted or is disliked may decrease motivation to process a message. Both traditional elements of ELM (issue involvement and need for cognition) and social media characteristics (apomediary relationship) are considered as possible influencers of motivation to process the message.

Once a user allocates mental resources to the message based on motivation level, he or she begins the message-processing phase. A variety of cognitions about the source (both message creator and apomediary), message, and issue are generated while the user views the message (Cacioppo et al., 1981). These cognitions include thoughts about the message creator's credibility, overall believability of the message, commentary from the apomediary, and empathy evoked by the message (Cacioppo et al., 1981). However, these concepts vary in importance according to the amount of effort put into processing the message. For example, message creator credibility and message commentary by the apomediary might operate as important peripheral cues when motivation and issue involvement are low. In other words, if an individual is not particularly interested in a message topic and not motivated to process the message based on relationship with the apomediary, he might use message creator credibility heuristics and comments made by the apomediary to form an attitude about the message issue (Hewitt-Taylor & Bond,

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2012). If relationship with the apomediary is strong and issue involvement is high, empathy levels evoked by the narrative and argument quality become influential in the persuasion process.

The different cognitions about the message influence the user's attitude, which constitutes the final phase of this conceptual model. Attitudes and beliefs about mental illness are the primary outcomes of interest in this project. If cognitions are generally positive and congruent with the message, the user should report lower stigmatized beliefs about mental illness. An increase in empathetic feelings is known to reduce stigmatized beliefs about individuals with mental illness (Batson et al., 1997). Positive elaborations about a message are also known to increase attitude change toward the position argued in the persuasive message (Petty, Barden, & Wheeler, 2009). These two findings motivate the proposition that when an individual has favorable thoughts, high levels of empathy, and generally agrees with reading a message, he will be more likely to report positive attitudes about individuals with mental illness. Conversely, if cognitions are generally negative and incongruent with the message, the user should report more stigmatized beliefs about mental illness.

The overview of this model proposes four main stages for mental illness messages on social media: creating and sharing a message, motivation to process a message, cognitive allocation to processing the message, and formation of attitudes as a result of processing. However, this dissertation is primarily interested in the last three phases of this process. The following section reviews how this conceptual model is explicated in the experiments conducted in this dissertation project.

## Overview of Experimental Models

Based on the literature reviewed thus far, an experimental model was created to test hypotheses and research questions proposed. This model essentially depicts peripheral- and central-route processing of social media messages about mental illness in one graphic. Figure 1.3 outlines the experimental model proposed for when a user encounters a social media message about mental illness.

Issue involvement should drive the processing of the message. High-issue involvement will increase attention paid to the message, hence increasing overall number of elaborations. In addition, since issue involvement suggests personal experience or interest with mental illness, it should directly impact a user's ability to take the message creator's perspective. This is predicted to increase empathy, although message characteristics and cognitions may also influence empathetic reactions. Perceived endorsement from an apomediary may contribute to overall message evaluation, but it should not be an overly important variable since a central-route processor does not need to rely on an apomediary's commentary on the message. Similarly, perceived message creator credibility may influence overall message evaluation, but it may have a limited influence for individuals who are engaging in deep thought about the message. Perceived apomediary relationship should have little impact on message processing for individuals who have high-issue involvement.

In contrast, users who engage in peripheral-route processing should rely more on apomediary relationships and endorsements. When issue involvement is low, as per the predictions made by the ELM and prior research (Petty & Cacioppo, 1986), a user may turn to shortcuts to determine message quality.
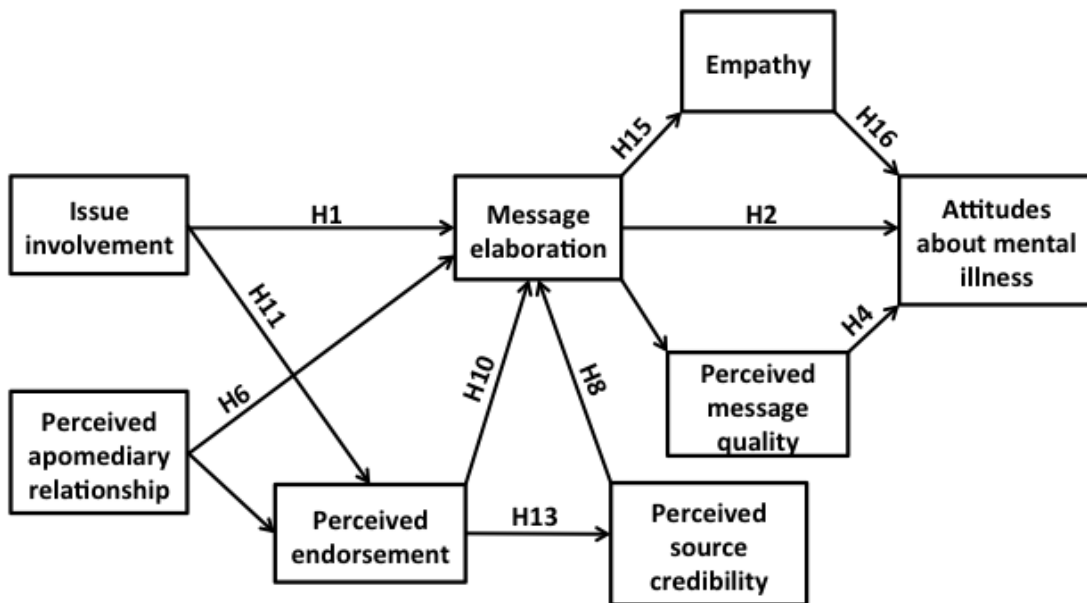
*Figure 1.3.* Proposed model for processing of counter-stigma social media messages.

This might be a key role of apomediaries in social media contexts. An apomediary provides cues to message quality through message sharing and comments, which also influence the perceived credibility of the message creator (Eysenbach, 2008). These variables become much more important for the message outcome under low-elaboration conditions. Empathy may still play a role in processing outcomes, but it should be a minimal role given that low-elaboration levels should indicate less scrutiny of the message itself, which would lessen perspective-taking. Instead, users who engage in the peripheral route will use apomediary cues and endorsements to reach conclusions about the message, thereby forming attitudes about individuals with mental illnesses.

## Overview of Studies

One pilot study and two experiments addressed the purposes of this dissertation project. The pilot study tested potential arguments for the stimuli messages, but did not directly test any predictions related to the proposed model. Message quality was used to indicate the role of other variables by comparing elaboration outcomes of high- versus low-quality messages (Petty & Cacioppo, 1986). The influence of peripheral cues may be implied from analysis of processing outcomes based on known relationships between argument quality and message processing (Petty et al., 1995). Given this project's interest in the activation of processing routes, a pilot test developed message arguments for the experimental studies.

The two experiments split the proposed model into smaller pieces in order to more directly test the proposed relationships. Testing all of the assumptions put forth in this project would be an unwieldy and costly endeavor if pursued using an individual study. Most ELM studies focus on either how psychological processes influence persuasion or what cues trigger different psychological processes, but this project is interested in both. It would be beneficial to first confirm that certain psychological processes or states have the predicted influence on attitudes (ex: that increased empathy leads to more positive attitudes about individuals with mental illness) before testing how certain cues activate a psychological process (ex: apomediary comments influence empathetic response to the message).

The first experiment examined the typical ELM propositions, such as the relationship between message quality, involvement and attitude change, for user-generated mental illness narratives on social media. It also addressed the role of empathy

within the proposed dual-process model of stigma reduction. The second experiment

tested proposed relationships between apomediary relationship, message creator

characteristics, and endorsement cues on message processing.

The two experiments proposed tested different segments of the model created for

this project. Together, results of these studies built evidence for the model as a possible

pathway to stigma reduction and informed future research using the model. The

following sections outline the methods used for each of the experiments in this project.

**CHAPTER 3: GENERAL METHODS AND PILOT STUDY**

The research questions and hypotheses proposed by this dissertation address the influence of independent variables on dependent variables. In this project, the independent variables include experience with mental illness, empathetic reaction to a social media message, and perceived relationship with a message poster. The dependent variables are attitudes towards individuals with mental illness and preferred social distance from the mentally ill. Experimental designs are best suited to test cause-and-effect relationships, such as the message-related variables of interest and stigmatized beliefs about mental illness (Grabe & Westley, 2003; Reeves & Geiger, 1994). The first section of this chapter discusses the general experimental methods used across all three studies in this dissertation. The next section details the pilot study, which tested stimuli for the experiments.

**Rationale for Experiments**

The experiments conducted for this project were between-subjects, factorial designs with multiple stimuli in the form of messages. Pretests and posttests collected attitudinal measures from participants so that analyses of attitude change could be made (Grabe & Westley, 2003).

Random assignment of participants to treatment groups increased the likelihood that each group was equivalent on variables investigated in this study and possible confounding variables (Shapiro, 2002). By using random assignment to experimental groups, researchers are able to use inferential statistics to quantify the likelihood that results of the study are a result of the tested manipulation and not some other source of variance (Lang, 1996). Experiments are rarely conducted using random samples, even

though it allows for generalization of results from the sample to populations (Sparks, 1995). This is generally due to the monetary cost and difficulty of obtaining a random sample of participants (Sparks, 1995). However, generalization from a sample to a population is not often the goal of experiments (Lang, 1996). For many projects, the aim is to draw conclusions about some hypothesized relationship between variables (Berkowitz & Donnerstein, 1982). This dissertation aims to draw inferences about the connection between variables of interest in this study. Hence, random assignment of a nonprobability sample is an appropriate approach.

## Addressing Validity

Many researchers consider experiments to have weak external validity (Berkowitz & Donnerstein, 1982). This often stems from the argument that experiments are too artificial and not generalizable beyond the laboratory conditions. On the other hand, experiments are considered to have strong internal validity because of the level of control the researcher has over manipulating variables and procedures related to the study (Grabe & Westley, 2003). This dissertation project attempted to balance the issues with validity by using a pretest-posttest design that utilized attention checks and distractor variables, testing multiple messages to reduce confounding results from a single message, using measurements validated by previous research, and creating messages that were similar to those seen on social media.

The pretest-posttest design increased internal validity by increasing the likelihood that changes in the dependent variable (i.e., attitudes about mental illness) were caused by the manipulation of independent variables (Grabe & Westley, 2003). However, there was a risk that participants would answer questions by picking what they thought was the

right answer or intentionally choosing a socially desirable response (Berkowitz &

Donnerstein, 1982). Therefore, distractor topics were included in the pretest and posttest

so that participants could not easily determine the purpose of the study. Participants

agreed to answer questions about stigmatized health conditions, which included mental

illness and alcohol or drug addiction, for example. Disguising the intent of a study is

known to reduce socially desirable responses from participants, as well as reduce answers

given in order to provide researchers with the outcome they desire (Berkowitz &

Donnerstein, 1982). In addition, this strategy should reduce reactivity of participants to

the pretest by obscuring which measures are of interest to the study (Grabe & Westley,

2003).

Adding extra items to a questionnaire makes the study longer, which runs the risk

of increasing participant fatigue and completion mortality (Grabe & Westley, 2003). To

overcome this obstacle, the questionnaire contained five different attention checks. The

attention checks were located throughout the questionnaire and asked participants to give

a particular answer to the item (ex: agree). Participants had to pass four out of five

attention checks in order to be compensated. The use of attention checks increased the

likelihood that participants were answering questions with care and reduced the number

of participants that had to be removed from the sample.

Two additional common strategies to increase validity are message repetition and

random stimuli order. Media messages are complex, and several factors might be present

in any given stimulus regardless of the attempt to create variance only through the

independent variables under investigation (Reeves & Geiger, 1994). A multi-message

approach reduced the risk of falsely attributing results to types of messages instead of a

single message's variance. Exposing each treatment group to multiple versions of the treatment message has been shown to reduce the likelihood of systematic errors due to characteristics of the message stimuli instead of the independent variable manipulation (Thorson, Wicks, & Leshner, 2012). A multiple-message design was chosen because this research project is more interested in the characteristics of messages that might evoke certain psychological responses rather than the effects of one particular message (Thorson et al., 2012). The pilot study tested several potential messages for the experiments in this dissertation project. The first and second experiments in this dissertation incorporated two messages in each treatment condition. Each message varied on the independent variables of interest in this project. With this approach, results from these experiments are less likely to be confounded by message variance.

Random presentation of stimuli messages controlled for order effects. These effects occur when a participant's response to stimuli is influenced due to the order in which she viewed the stimuli (Slater, 1991). For example, one form of the stimuli might lead participants to think differently about the other form than they would if they had not been exposed to that first form. This would cause issues with internal validity, because the results of the study might be falsely attributed to the experimental manipulation when they were actually confounded by viewing order. Each stimulus in the present experiment was presented in a random order to each experiment participant to reduce order effects.

It is important to assess the validity of measurements in any study, and several steps were taken for this project. First, previous studies used and validated most of the measures included in this study. It is important to note that previous reliability does not guarantee that the measurement will also be valid for another study (Davis, 2012).

Therefore, statistical analyses of the data collected in each experiment tested the relationship between items in the variable scales using factor and reliability analyses. Details on these analyses are presented in the next two chapters of this dissertation.

Prior to the pilot study, three fellow graduate students informally assessed face validity of measures used in this project. Face validity is defined as a subjective judgment that the conceptual definition of variables aligns with the operational measure of that variable (Davis, 2012). Graduate students who conduct research in a similar area viewed the questionnaires and made suggestions for improving wording and reducing redundancy. The questionnaires were modified using the feedback solicited from the volunteers.

## Pilot Study

It is important to ensure that messages are appropriate for the study context in order to properly test the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986). Therefore, the purpose of the pilot study was to identify messages to use as stimuli in the two main experiments. The pilot study was conducted after the initial pretest and prior to the main experiments. Pilot studies test message manipulations, check the reliability or validity of an instrument, and inform the researcher of likely outcomes of a project (Baker, 1994). The pilot study was a 2 (message topic: depression, mental illness) x 2 (message quality: high, low) factorial design that included attitudinal measures related to several mental illness terms.

**Measures**

*Pretest Questionnaire*

The pretest questionnaire for the pilot study measured three constructs prior to exposure to the stimuli messages. Appendix A contains the full pretest questionnaire for the pilot study. Questions regarding familiarity with mental illness, if the participant has a mental illness, and if the participant knows someone with a mental illness measured ***personal experience with mental illness***. These measures were used in previous studies about experience with mental illness (Boyd et al., 2010; Freeman & Spyridakis, 2004). For example, "Do you personally know someone with a mental illness?" was a yes-or-no question. If answered yes, a follow-up question asked whether this person was a close friend, significant other, acquaintance, or distant family member.

A set of Likert-type statements related to personal interests measured ***interest in mental illness***. This scale was adapted from previous work regarding interest in health information (Dutta, 2008). Dutta's (2008) original scale measured a concept called health orientation, which addressed interest in and experience with general health topics. The Likert-type statements were adapted to change the topic from health to mental health. For example, an original statement was, "I enjoy learning about health issues." The statement was adapted to say, "I enjoy learning about mental health issues." Responses appeared on a five-point scale from "strongly disagree" (1) to "strongly agree" (5).

Attitudinal items about five different mental illnesses formed the ***mental illness evaluation*** scale. The mental illnesses tested were depression, anxiety, post-traumatic stress disorder, bipolar disorder, and mental illness. Evaluations were included to determine if there is a significant different in attitudes towards specific mental illnesses.

This scale was adapted from previous studies that measured mental illness stigma (Corrigan et al., 2012). All adaptions changed the topic of the statement, but made no other changes. For example, the original item stated, "Depression is a sign of personal weakness." The item was adapted to say, "Anxiety is a sign of personal weakness," and so forth for each of the five illnesses tested. The attitudinal scale consisted of nine statements that asked participants to choose a response from a set of five-point, Likert-type options from "strongly disagree" (1) to "strongly agree" (5).

### *Posttest Questionnaire*

A series of evaluations were recorded after exposure to each stimulus message. The *thought-list* procedure provided a text box and asked participants to type all of the thoughts they had about the message. Participants had an unlimited amount of time to complete this task and unlimited space in the text box. The thought list occurred before the message evaluation items to avoid biasing the thought list by providing cognitions about the message that result only because of exposure to the evaluative measures (Petty et al., 1983). Thought-list procedures collected responses in case the researcher wanted to analyze thought origin and valence as post-hoc examinations of the data. In addition, it might be valuable to have this information for additional papers or research from this project.

Nine evaluation items evaluated *perceived quality* of the message viewed. Response options fell on a five-point, Likert-type scale from "strongly disagree" to "strongly agree." Appendix B contains a full list of evaluative measures in the posttest questionnaire. The measures were taken from argument quality development procedures associated with ELM studies that investigated personal narratives (Freeman &

Spyridakis, 2004). Three items directly measured *empathy* related to the stimuli messages. These items were from the Empathy Response Scale (ERS), which was originally developed to measure empathetic response to HIV/AIDS prevention narratives (Campbell & Babrow, 2004). For example, a statement said, "I was moved by the writer's experience." This set of statements required participants to choose a response on a five-item, Likert-type scale from "strongly disagree" (1) to "strongly agree" (5).

## Participants

Many researchers have criticized the use of college student samples, citing evidence that these populations are biased in terms of education, economic status, and age (Gosling et al., 2004; Sears, 1986). Therefore, alternatives to college student sampling were sought. Amazon's Mechanical Turk (MTurk) service recruited participants for this pilot study. Previous studies suggested that samples collected using MTurk are more representative of the general U.S. population than other Internet sampling methods and college student samples (Buhrmester, Kwang, & Gosling, 2011). In addition, MTurk is a quick and inexpensive way to reach large sample sizes (Buhrmester et al., 2011). It is important to note that MTurk is a non-probability sampling method. Participants self-select into the projects they complete, and the population of workers registered in MTurk is a volunteer group.

Since this proposal is concerned with the effects of cognitive processes and not a specific population, a non-probability sample is acceptable (Thorson et al., 2012). The MTurk service allows requesters to recruit workers for a variety of tasks, including file sorting, transcriptions, and research study participation (Amazon, 2015). Any worker who meets the requirements set by the requester completes the online task and collects a

monetary reward for participation. Criteria for participating in this pilot study included living in the U.S., being 18 or more years old, having native English fluency, and being a user of social media sites, which was defined as visiting a social media site at least once a week.

A total of 313 subjects participated in the pilot study. The pilot sample size is congruent with general recommendations of having at least 10% of the final study sample in pilot studies (Lackey & Wingate, 1998). The number of participants in the first and second experiments was 396 and 1,602, respectively. A total of 2,311 subjects participated across all three experiments in this study. Subjects were not allowed to participate in more than one experiment, which was controlled using MTurk settings. Participants received $0.25 as compensation for work on this pilot study. Buhrmester et al. (2011) suggested a payment of $0.25-$0.50 for simple survey tasks that take less than 30 minutes, which matches the expected time and complexity of this pilot study.

### Stimuli

This dissertation project investigated how readers respond to social media messages created by individuals with a mental illness. It is important to create stimuli messages that are realistic and perceived by participants in the way intended. The pilot study tested two messages related to mental illness, which were created using existing stigma-reduction campaigns and social media messages as examples. The messages were first-person narratives about two different topics (depression and mental illness). All messages used first-person narratives because empathy is a variable of interest to this project and this style is known to evoke empathetic responses to mental illness narratives (Mann & Himelein, 2008). Depression and mental illness were the message topics

because this dissertation project is most interested in non-violent stigma associated with mental health issues. Depression is often attributed to personal weakness and laziness (Griffiths et al., 2008). The messages conveyed personal experience with stigma and ended with a call to stop negative thoughts about mental illness. The messages were manipulated to reflect a certain level of quality.

Many other studies use writing styles to differentiate between high-quality and low-quality messages (Agichtein et al., 2008). Common indicators of poor message quality include lack of capitalization, incorrect punctuation, and misspelled words (Agichtein et al., 2008). In the following experiments, high-quality messages used proper grammar and spelling. Low-quality messages contained the same language, but did not properly capitalize, misspelled words, and used informal short hand (ex: b/c instead of because, & in place of and). Messages were relatively the same length. Messages about general mental illness were 207 words and messages about depression were 280 words. Messages for the pilot study were not designed to resemble any particular social media format but were plain text that participants evaluated for message quality. The pilot study tested four messages: low-quality depression, high-quality depression, low-quality mental illness, and high-quality mental illness (see stimuli in Appendix C).

**Stimuli Pretest**

A key component to this research was the perceived quality of the stimuli messages. Since specific hypotheses were made regarding the influence of message quality on other variables in this study, it was vital to check that the messages designed for the experiments were indeed perceived as intended.

It is important to note that prior to this pretest, an unsuccessful pilot study was conducted. This study used argument strength to differentiate between high- and low-quality messages. High argument quality was expressed by the presence of supporting evidence, use of sources or citations, and explanations of message claims. Low argument quality was expressed by the absence of supporting evidence, lack of sources or citations, no explanations of message claims, and statements that rely on personal beliefs or opinions instead of logic. Similar manipulations were used in previous studies using argument quality, and these dimensions are often suggested for measuring this variable (Areni & Lutz, 1988; Dutta-Bergman, 2004).

I created several messages that either included scientific facts/statistics or did not in hopes of using them in my experiments. A total of 325 individuals were recruited from MTurk for the failed pilot study. No statistically significant differences in quality were reported between the messages I intended to be high- or low-quality using inclusion of facts and statistics as the differentiating factor. Therefore, new messages were created using writing quality as the differentiator between the different stimuli messages. These messages were first subjected to a brief pretest and then a full pilot study as explained in the remainder of this chapter.

The stimuli pretest examined the perceived quality of the messages designed for the experiments prior to conducting the full pilot study. The purpose of this pretest was to verify that the messages intended to be high- or low-quality were perceived as such by the participants. In addition, three mental illnesses used in the stimuli tested whether different illnesses influenced perceived quality or empathy. The pretest was a 3 (topic: mental illness, depression, bipolar disorder) x 2 (quality: high, low) posttest-only factorial

design. The project received expedited Institutional Review Board approval from the University of Iowa (see Appendix D for the approval form). All experiments were submitted as part of the same application, with modifications to stimuli and questionnaires made as needed.

*Pretest participants*. Fifty-seven undergraduate students participated in the pretest. Participants were students in a large-lecture, general education course on media at the University of Iowa that serves mostly freshmen and sophomores. Two discussion sections from the participated in the study. Participation was completely voluntary, and no compensation was provided. The pretest occurred before class started during discussion sections on January 21-22, 2016.

*Pretest procedures.* The instructors for each section gave students a questionnaire sheet. The sheet had instructions and two randomly assigned messages to evaluate. Appendix E provides the instructions, evaluation items, and all stimuli used in the pretest. The messages were those intended for the full study and used either mental illness, depression, or bipolar disorder as the message topic. Each topic had a low-quality message and a high-quality message. High-quality messages used correct punctuation, grammar, spelling, and capitalization. Low-quality messages used incorrect punctuation, grammar, spelling, and capitalization. The messages were first-person narratives about a personal experience with stigma related to the mental illness named. The messages were plain text and did not include any source information. The evaluations for each message included quality items and empathetic responses to the message. Data from the questionnaires were entered into an SPSS data file for analysis.

***Pretest results.*** Independent-samples *t*-tests compared means between the high-quality and low-quality messages about the same mental illness. Low-quality mental illness messages were rated significantly lower in quality (*M = 3.00, SD = .66*) than high-quality mental illness messages (*M = 3.75, SD = .63*), *t*(51) = 3.92 , *p* < .001, *r* = .50 (see Table 3.1). Effects sizes for *t*-tests conducted in this study are reported as Pearson's *r*. This result passes the threshold for a large effect size (*r* = .50) (Cohen, 1992). High-quality depression messages were rated significantly higher in quality (*M = 4.26, SD = .53*) than low-quality depression messages (*M = 3.25, SD = .65*), *t*(26) = 4.54, *p* < .001, *r* = .66. Low-quality bipolar messages were rated significantly lower in quality (*M = 3.16, SD = .76*) than high-quality bipolar messages (*M = 4.39, SD = .59*), *t*(25) = 4.61, *p* < .001, *r* = .68. High-quality bipolar messages (*M = 4.31, SD = .61*) had a significantly higher empathy mean than low-quality bipolar messages (*M = 3.44, SD = .73*), *t*(25) = 3.27, *p* = .003, *r* = .55 . Empathy means were not significantly different between high-quality and low-quality messages with mental illness or depression topics.

One-way analysis of variance (ANOVA) explored whether the high-quality messages varied by mental illness (i.e., mental illness, depression, bipolar).  A main effect for message topic was found, *F*(2, 41) = 5.19, *p* < .01, $\eta^2$ = .20. (See Table 3.1.) Bonferroni post-hoc analyses showed that high-quality mental illness messages (*M* = 3.75, *SD* = .63) ranked lower on quality mean than high-quality bipolar messages (*M* = 4.39, *SD* = .59). There were no significant differences between high-quality messages

*Table 3.1 Pretest Means on Quality and Empathy Scores by Message Topic and Intended Message Quality.*

| Message Topic | Intended Message Quality | | | | | | | | | | | |
| | High Quality | | | | | | Low Quality | | | | | |
| | Quality | | | Empathy | | | Quality | | | Empathy | | |
| | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N |
| Mental illness | 3.75[a,b] | .63 | 18 | 3.80 | .79 | 20 | 3.00[a] | .66 | 35 | 3.59 | .76 | 37 |
| Depression | 4.26[a] | .53 | 14 | 4.23 | .83 | 16 | 3.25[a] | .65 | 14 | 4.02 | .78 | 14 |
| Bipolar | 4.39[a,b] | .59 | 12 | 4.31[a] | .61 | 12 | 3.16[a] | .76 | 15 | 3.44[a] | .73 | 15 |

[a] Difference in quality or empathy between intended high-quality and low-quality message of the same topic is significant, $p < .01$.
[b] Difference between means in same column is significant, $p < .01$.

*Note:* High scores indicate greater quality and empathy.

that were either on the bipolar or depression topics. There were no significant differences in empathy means between high-quality messages of any topic. Additional one-way ANOVAs explored whether low-quality messages varied by mental illness (mental illness, depression, bipolar). There were no significant differences in message quality or empathy means between low-quality messages of any topic.

*Pretest discussion*. Results of this pretest confirmed that participants perceived a difference in message quality between low- and high-quality stimuli. In addition, results indicated that the high-quality mental illness message received lower quality ratings than the high-quality bipolar message. This suggested that the topic of the message might influence perceived quality of the message. No significant difference in quality or empathy was found between the depression and mental illness messages. These two topics were used in the pilot study based on the results of this pretest in order to reduce the difference in perceived quality of the two messages based on message topic alone.

Empathy for the high- and low-quality bipolar message differed significantly, but this was not a concern for the pilot study. Several hypotheses in the major experiments in this project predicted how perceived message quality might influence empathetic reactions to messages. This variable was measured in the pretest as a way to compare the equivalence of messages so that any major differences in empathy could be assessed prior to conducting the experiments. After examining the difference, this result was determined to not be a weakness of the stimuli message manipulation, but might be an indication that the hypothesized relationships are correct. In other words, this result might be indicative of the relationship between message topic and empathy, which would be an interesting

finding if confirmed in the experiments. The relationship between message topic and empathy is further explored in experiment one, which is detailed in the following chapter.

## Pilot Study Procedures

MTurk's posting system recruited participants for the pilot study. Each viewed a welcome message explaining the intent of the study, which served as informed consent. Appendix F provides the consent letter included in the pilot study. Once participants agreed to participate, they proceeded to the study link. The study was hosted on Qualtrics survey software and required participants to input a verification number from the end of the study into MTurk's system for verification of completion. Only participants who passed four attention checks were verified and included in the study. Attention checks placed within the scale items for the message evaluation stated, "This is an attention check. Please answer neither agree nor disagree."

Subjects completed a pretest, which included personal experience with and interest in mental illness. Then, participants responded to statements about specific mental illnesses (depression, bipolar disorder, anxiety, PTSD, and mental illness) to gauge general attitudes towards each mental illness. The purpose of these mental illness evaluations was to determine which mental illness terms should be used in the message stimuli for the subsequent experiments. These mental illness terms were rated similarly on attitudinal scales (Corrigan et al., 2012; Griffiths et al., 2011) and preferred social distance scales (Boyd et al., 2010; Link et al., 1999) used in this study.

Next, subjects viewed two randomly presented messages (see stimuli in Appendix C). Each participant viewed one depression message (either high quality or low quality) and one mental illness message (either high quality or low quality). After

viewing each message, subjects responded to a series of statements about the quality of the message and answered items related to empathetic responses (see posttest measures in Appendix B). Once finished, participants viewed a debriefing message that included information about mental illness resources (see debrief message in Appendix G). Participants then received a verification number and returned to MTurk to enter the number for compensation.

## Scale Testing

The first step of data analysis was to perform a factor analysis and reliability analysis on the scale items used in the questionnaire. Pretest questionnaire answers contributed to the *interest in mental illness* and *mental illness evaluation* scales. Posttest questionnaire answers contributed to the stimuli message evaluations, which are divided into a *quality mean* and *empathy mean*. Thought-list responses were not analyzed for the pilot study.

**Interest in mental illness.** Participants answered six items related to interest in. All answers were reported on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree), where strongly agree answers correspond to high interest in and experience with mental illness. In other words, high numbers signal more interest in and experience with mental illness.

A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one. The eigenvalue is based on Kaiser's criterion, which suggests using this cutoff value when the sample size is more than 250 and the average of the extracted communalities is more than .59 (Field, 2009; Kaiser, 1960). The scales used in this study meet these criteria. All six items loaded

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on the factor. No strong cross-loadings appeared in the analysis. Crossloading occurs when a single item is strongly correlated with two or more constructs, which would indicate that the item is not mutually exclusive to a single factor (Costello & Osborne, 2005). Cross-loadings were operationally defined as any item having a loading score of .32 or higher on two or more factors (Costello & Osborne, 2005). One scale was created using the six-item grouping.

The *interest in mental illness* scale was tested for the six items related to interest in mental illness (paying attention to news stories about mental illness, thinking mental health is important, etc.). This six-item scale explained 61.9% of the variance in the sample. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy tested the suitability of this sample to produce distinct factors (Yong & Pearce, 2013). Experts suggest that results of this test be above .50 to ensure reliability of factors (Yong & Pearce, 2013). The KMO measure for this scale was .84.

Adding the six items tested and dividing the total by six to standardize to the five-point scale of the original items created the *interest in mental illness* scale. The interest in mental illness mean was calculated for each participant in this study ($M = 3.87$, $SD = .74$). Cronbach's alpha was used to evaluate the internal consistency of the scales used in this study (Cronbach, 1951). Cronbach's alpha for the scale was .88, which is considered a satisfactory reliability score (Gliem & Gliem, 2003). Deleting items did not increase the alpha for this scale.

**Mental illness evaluations.** Participants responded to nine statements related to opinions about different mental illnesses prior to viewing stimuli messages. These statements were adapted from an existing set of mental illness evaluations (Corrigan et

al., 2012). Each statement was modified to include the name of the specific mental illnesses in the scale (i.e., depression, PTSD, mental illness). All answers were reported on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). Some variables were reverse-coded. Therefore, responses closer to one corresponded to positive, non-stigmatized beliefs about a particular mental illness. In other words, lower numbers indicated less stigmatized beliefs and higher numbers suggest more stigmatized beliefs.

A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one. Two items had a loading factor less than the recommended minimum of .40 (Tabachnick & Fidell, 2001). This minimum threshold is suggested because it is roughly equivalent to a 10% overlap with other variables in the factor and anything less than that would be weakly associated with the target construct (Costello & Osborne, 2005). The item "People who have (insert specific mental illness) are unpredictable" had a primary loading factor of .39 and the item "If I had a (insert specific mental illness) I would not tell anyone" had a primary loading factor of .26. These two items were eliminated, and the scale was retested using the seven adequate items.

The final factor included seven items from the original scale with the two underperforming items removed based on the first analysis. This analysis explained 59.9% of the variance in the sample, and the Kaiser-Meyer-Olkin measure of sampling adequacy was .90. The *mental illness evaluation* scale was calculated by adding the seven items tested and dividing the total by seven to standardize to the five-point scale of the original items for each mental illness tested (see Table 3.7). Cronbach's alpha for the scale was .88. Deleting items did not increase the alpha for this scale.

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**Stimuli message evaluations.** Each participant was randomly assigned to view one of the mental illness messages (high quality or low quality) and one of the depression messages (high quality or low quality). Four stimuli messages were tested in this pilot study: (1) high-quality mental illness message, (2) low-quality mental illness message, (3) high-quality depression message, and (4) low-quality depression message. Each message was evaluated by participants based on a set of empathy items and quality items.

*Empathy* was measured using the three items from the post-message evaluation that addressed empathetic responses to the message. A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one. This analysis explained 78.6% of the variance in the sample and the KMO measure of sampling adequacy was .71.

Adding the three items tested and dividing the total by three to standardize to the five-point scale of the original items created the ***empathy*** (Overall: $M = 4.03$, $SD = .80$) scale for each message in the pilot study (see Table 3.8). Cronbach's alpha for the subscale was .86. Deleting items did not increase the alpha for this scale.

*Quality* was measured using the nine items that addressed quality of the message. A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one. This analysis explained 59.4% of the variance in the sample, and the KMO measure of sampling adequacy was .90. Adding the nine items tested and dividing the total by nine to standardize to the five-point scale of the original items created the ***quality*** of each message in this pilot study (see Table 3.8). Cronbach's alpha for the subscale was .91. Deleting items did not increase the alpha for this scale.

# Pilot Study Results

The goals of the pilot study were to verify that participants perceived stimuli messages as intended, to test mental illness terms used, and to validate the scales used in this study. The previous section outlined scale testing for this project. Further analysis of the quality and empathy means of the stimuli messages provides comparisons among the pilot messages.

## Sample Demographics

The sample was 63.3% female (*n* = 190) and 35.3% male (*n* = 106). A full summary of demographic statistics is presented in Table 3.2.

*Table 3.2 Pilot Study Demographic Descriptions.*

|        |                           | Sample (*N* = 300) |
| ------ | ------------------------- | ------------------ |
| Gender | Female                    | 63.3               |
|        | Male                      | 35.3               |
|        | Other                     | 1.3                |
|        |                           |                    |
| Age    | 18 – 24                   | 17.4               |
|        | 25 – 34                   | 37.5               |
|        | 35 – 44                   | 22.1               |
|        | 45 – 54                   | 12.0               |
|        | 55 – 65                   | 9.7                |
|        | Over 65                   | 1.3                |
|        |                           |                    |
| Race   | White                     | 79.6               |
|        | Hispanic or Latino        | 8.0                |
|        | Black or African American | 5.8                |
|        | Asian or Asian American   | 5.8                |
|        | Native American           | 1.0                |
|        | Other                     | .6                 |

*Note:* *N*'s range from 299 to 300 due to occasional missing data. Entries are in percentages. Percentages for each demographic variable may not add to 100 due to rounding.

Participants aged 25-34 comprised the largest portion of the sample at 37.5% ($n =$ 112), followed by 35-44 at 22.1% ($n = 66$) and 18-24 at 17.4% ($n = 52$). A majority of the sample identified as White or Caucasian (79.6%, $n = 236$), followed by Hispanic or Latino (8%, $n = 23$). Participants with an associate or bachelor degree covered the largest education demographic at 39.4% ($n = 118$), followed by individuals with some college at 33.7% ($n = 101$). Full-time employment was the most frequently reported status (46.5%, $n = 139$), followed by part-time employment (16.4%, $n = 49$) and unemployed (15.7%, $n = 47$). Individuals who reported a household income of $20,000-$39,999 comprised the highest percentage of the sample at 27.8% ($n = 83$), followed by less than $19,999 (20.4%, $n = 61$) and more than $80,000 (19.4%, $n = 58$). A full summary of education, employment, and income statistics is presented in Table 3.3.

**Treatment Assignment**

It is important to test that the treatment groups were indeed randomly assigned and that there was no significant difference between the groups on the basis of demographic variables. Chi-square analysis revealed that there was no significant difference in the assignment to treatment conditions by gender, race/ethnicity, age, education, employment status, or household income. Demographics for each treatment group are reported in Table 3.4. Additional chi-square tests revealed that participants who reported having a mental illness, knowing a close friend or family member with a mental illness, and knowing a distant friend or family member with a mental illness were not significantly different in distribution among the four treatment groups. A full summary of chi-square analyses for mental illness-related variables is presented in Table 3.5.

*Table 3.3 Pilot Study Education, Employment, and Income Descriptives.*

|  |  | Sample (N = 300) |
|---|---|---|
| Education | High school or less | 12.7 |
|  | Some college | 33.7 |
|  | Associate or Bachelor's degree | 39.4 |
|  | Master's or PhD | 14.4 |
|  |  |  |
| Employment | Full-time | 46.5 |
|  | Part-time | 16.4 |
|  | Unemployed | 15.7 |
|  | Self-employed | 10.0 |
|  | Other | 8.0 |
|  | Retired | 3.3 |
|  |  |  |
| Household Income | Less than $19,999 | 20.4 |
|  | $20,000 – $39,999 | 27.8 |
|  | $40,000 – $59,999 | 18.7 |
|  | $60,000 – $79,999 | 13.7 |
|  | More than $80,000 | 19.4 |

*Note: N*'s range from 299 to 300 due to occasional missing data. Entries are in percentages. Percentages for each demographic variable may not add to 100 due to rounding.

Several other variables were tested to evaluate the distribution between the groups. One-way analysis of variance (ANOVA) revealed that there was no significant different in the assignment to treatment conditions by pretest measures of interest in mental illness or familiarity with mental illness. A summary of means for these variables by messages viewed is presented in Table 3.6.

*Table 3.4 Pilot Study Demographic Frequencies by Treatment Message.*

| | | Treatment Messages | | | |
|---|---|---|---|---|---|
| | | Mental Illness Message Quality ($N = 305$) | | Depression Message Quality ($N = 300$) | |
| | | High ($n = 152$) | Low ($n = 153$) | High ($n = 151$) | Low ($n = 149$) |
| Education | High school or less | 9 | 10 | 9 | 10 |
| | Some college | 28 | 25 | 24 | 24 |
| | Associate or bachelor | 24 | 32 | 33 | 29 |
| | Master's or PhD | 12 | 9 | 12 | 10 |
| Employment | Full-time | 41 | 28 | 36 | 34 |
| | Part-time | 7 | 18 | 11 | 13 |
| | Unemployed | 12 | 13 | 14 | 8 |
| | Self-employed | 9 | 4 | 8 | 9 |
| | Other | 2 | 8 | 7 | 7 |
| | Retired | 2 | 4 | 2 | 2 |
| Household Income | Less than $19,999 | 14 | 18 | 15 | 14 |
| | $20,000 – $39,999 | 23 | 21 | 19 | 20 |
| | $40,000 – $59,999 | 11 | 17 | 11 | 17 |
| | $60,000 – $79,999 | 13 | 8 | 13 | 7 |
| | More than $80,000 | 11 | 12 | 20 | 15 |
| Gender | Male | 32 | 25 | 28 | 21 |
| | Female | 41 | 49 | 49 | 51 |
| Race and Ethnicity | White | 61 | 58 | 59 | 58 |
| | African American | 4 | 4 | 4 | 6 |
| | Hispanic or Latino | 5 | 7 | 8 | 3 |
| | Asian | 3 | 4 | 6 | 5 |
| | Other | 0 | 1 | 0 | 1 |

*Note*: Entries are in frequencies. Comparisons among treatment groups were conducted using chi-square analysis. No significant differences were observed, indicating that demographic variables were distributed evenly between the treatment groups.

*Note:* Due to small expected cell sizes, Fisher's Exact Test was used to compare race/ethnicity between the groups. Entries are in frequencies. No significant differences were observed, indicating that demographic variables were distributed evenly between the treatment groups.

*Table 3.5 Pilot Study Personal Mental Illness Experience Frequencies by Treatment Message.*

| | | Treatment Messages | | | |
|---|---|---|---|---|---|
| | | Mental Illness Message Quality ($N = 305$) | | Depression Message Quality ($N = 300$) | |
| | | High ($n = 152$) | Low ($n = 153$) | High ($n = 151$) | Low ($n = 149$) |
| Personal Mental Illness Diagnosis | Yes | 53 | 63 | 61 | 53 |
| | No | 99 | 90 | 90 | 96 |
| Close Friend or Family Diagnosed with Mental Illness | Yes | 92 | 110 | 100 | 99 |
| | No | 60 | 43 | 51 | 50 |
| Distant Friend or Family Diagnosed with Mental Illness | Yes | 42 | 52 | 50 | 44 |
| | No | 110 | 101 | 101 | 105 |

*Note*: Entries are in frequencies. Comparisons between treatment groups were conducted using chi-square analysis. No significant differences were observed, which indicates that these variables were evenly distributed between the treatment messages. Cell sizes for each message range from 149 to 153 due to occasional missing data.

*Table 3.6 Pilot Study Means of Interest in Mental Illness and Familiarity with Mental Illness by Treatment Message.*

| | Treatment Message | | | |
|---|---|---|---|---|
| | Mental Illness Message Quality ($N = 305$) | | Depression Message Quality ($N = 300$) | |
| | High ($n = 152$) | Low ($n = 153$) | High ($n = 151$) | Low ($n = 149$) |
| Interest in mental illness | 3.79 (.80) | 3.78 (.70) | 3.91 (.78) | 4.00 (.71) |
| Familiarity with mental illness | 3.22 (.67) | 3.18 (.58) | 3.21 (.65) | 3.36 (.59) |

*Note*: Comparisons among treatment groups were conducted using one-way analysis of variance. Standard deviations are in parentheses. No significant differences were observed between messages for interest or familiarity, indicating that these variables were evenly distributed between the four stimuli messages.

*Note:* Cell sizes for each message range from 149 to 153 due to occasional missing data.

*Note:* The interest in mental illness items were operationalized on a 5-point scale, where 1 = very uninterested and 5 = very interested. The familiarity with mental illness items were operationalized on a 5-point scale, where 1 = very unfamiliar and 5 = very familiar.

**Mental Illness Evaluations**

Five mental illnesses were tested: anxiety, depression, post-traumatic stress disorder, bipolar disorder, and mental illness. An attitude mean was calculated for each condition for all participants. One-way repeated-measures ANOVA compared the evaluation of each condition. Evaluation means were significantly affected by the type of mental illness, $F(3, 1180) = 23.93$, $p < .001$, $\eta^2 = .08$. Bonferroni post-hoc analyses revealed that bipolar disorder ($M = 1.91$, $SD = .68$) received significantly higher evaluations than all other mental illnesses (see Table 3.7). In terms of the score scale, this means that participants had more stigmatized beliefs about bipolar disorder than any other term evaluated.

*Table 3.7 Pilot Study Evaluations of Mental Illness Conditions (N = 310).*

|                   | Mean  | *SD* |
|-------------------|-------|------|
| Bipolar Disorder  | 1.91* | .68  |
| Mental Illness    | 1.76  | .59  |
| PTSD              | 1.73  | .61  |
| Depression        | 1.70  | .69  |
| Anxiety           | 1.68  | .68  |

*Note*: Comparisons between these means were conducted using one-way, repeated-measures analysis of variance. N's for each mental illness range from 306 to 311 due to occasional missing data. The mental illness evaluation means were operationalized on a 5-point scale, where 1 = very non-stigmatized beliefs and 5 = very stigmatized beliefs. The average bipolar disorder evaluation as significantly more stigmatized than any other mental illness, $p < .001$. No significant differences were found between the remaining four mental illnesses.

**Evaluation of Stimuli Messages**

**Empathy.** Independent-samples *t*-tests analyzed the difference in empathy means between each topical pair of messages (high-quality depression versus low-quality depression, high-quality mental illness versus low-quality mental illness). There was no significant difference in empathy means between high- or low-quality mental illness messages (see Table 3.8). There was a significant effect for empathy means, $t(298) = 3.06$, $p < .01$, $r = .17$, with the high-quality depression messages receiving higher empathy means ($M = 4.16$, $SD = .85$) than the low-quality depression messages ($M = 3.84$, $SD = .98$).

**Quality.** Independent-samples *t*-tests analyzed the difference in quality mean between each topical pair of messages (high-quality depression versus low-quality depression, high-quality mental illness versus low-quality mental illness). There was a significant effect for quality, $t(296) = 6.40$, $p < .001$, $r = .35$, with high-quality mental illness messages ($M = 4.01$, $SD = .70$) receiving better quality means than low-quality

mental illness messages ($M = 3.43$, $SD = .85$; see Table 3.8). There was a significant effect for quality means, $t(291) = 7.36$, $p < .001$, $r = .42$, with the high-quality depression messages receiving higher means ($M = 4.14$, $SD = .73$) than the low-quality depression messages ($M = 3.42$, $SD = .94$).

*Table 3.8 Pilot Study Mean Empathy and Quality for Stimuli Messages.*

|  | Mental Illness Message | | Depression Message | |
|---|---|---|---|---|
|  | High Quality | Low Quality | High Quality | Low Quality |
| Empathy Mean | 4.12 (.84) | 4.00 (.87) | 4.16 (.85)* | 3.83 (.98)* |
| Quality Mean | 4.01 (.70)** | 3.43 (.85)** | 4.14 (.73)** | 3.42 (.94)** |

*Note*: Comparisons between high-quality and low-quality messages within topic were conducted using independent-samples *t*-tests. Standard deviations are in parentheses.

*$p < .01$  **$p < .001$

## Summary

The main goal of the pilot test was to identify messages to use as stimuli and mental illnesses to use in the messages for the two main experiments in this dissertation project. Analyses on mental illness term means and stimuli message means were conducted to achieve this goal. First, means for mental illness terms were compared. Analyses revealed that bipolar disorder received higher stigmatized evaluations than other terms in the study. This suggests that participants had more stigmatized beliefs, such as reporting that bipolar disorder was a sign of personal weakness or that individuals with the condition are dangerous, about this mental illness than others in the pilot study. This dissertation project was concerned with attitude change as a result of exposure to social media messages about mental illness. A more stigmatized condition, such as

bipolar disorder, might reveal effects that would not be seen when using conditions that are less stigmatized. Of the three remaining specific mental illness terms, depression received the middle evaluation, with PTSD having a more stigmatized evaluation and anxiety a less stigmatized evaluation. Therefore, the terms depression and bipolar disorder were chosen for the upcoming experiments.

Next, perceptions of message quality were compared. Analyses revealed that messages intended to be high quality were perceived as such by participants. Similarly, messages intended to be low quality were perceived as such by participants. This confirmed that the quality manipulation using punctuation, grammar, and spelling successfully influenced message quality evaluations. These two manipulations of the message were used for the two experiments to differentiate quality of the message.

Lastly, empathy means were compared between message conditions. Results of this analysis suggested that perceived message quality might influence empathy evoked by a message. Although there were significant differences, this is not a concern for the main experiments because they are intended to explicate the relationship between message quality, empathetic reactions, and attitudinal outcomes.  A difference in empathy reported after viewing a message might indicate that there is a relationship between these variables. This relationship is further explored in the next chapter of this dissertation.

The pilot study successfully tested the stimuli messages designed for use in the two main experiments in this study. The fourth chapter of this dissertation details the first experiment, which used the stimuli messages to explicate the relationship between interest and experience with mental illness, perceptions of message quality, empathy reported after viewing the message, and attitudes about mental illness. The main purpose

of the first experiment is to understand how traditional ELM variables interact in a mental

illness message context. The fifth chapter of this dissertation details the second

experiment, which builds on the first by adding social media variables, such as message

endorsement and apomediary relationship, to further explicate how messages about

mental illness are processed and to what extent this processing influenced mental illness

attitudes.

# CHAPTER FOUR: EXPERIMENT ONE

The goal of experiment one was to test the elaboration likelihood model (ELM; Petty & Cacioppo, 1986) in the context of user-generated messages about mental illness. This experiment sought to understand the relationships between perceived message quality, elaboration, and empathy on processing path and outcomes. This study was a 2 (message quality: low, high) x 2 (instructions: perspective-taking, objectivity) x 2 (message topic: bipolar disorder, depression) factorial design. Experiment one addressed hypotheses and research questions associated with ELM and empathetic responses to stigma narratives. The pilot study tested messages for use with this experiment in order to develop appropriate manipulations of message quality because message quality is often a variable in ELM used to determine the influence of other variables on message processing.

Of particular interest in this experiment was the influence of perceived message quality, message elaboration, and empathy on stigmatized attitudes about mental illness. More specifically, it was hypothesized that increases in elaboration and empathy would lead to less stigmatized attitudes about mental illness. Perceived message quality was hypothesized to influence stigmatized beliefs, such that higher quality messages were associated with less stigmatized beliefs about mental illness. In addition, the influence of issue involvement, measured as interest in mental illness and experience with mental illness, on message elaboration was investigated. Finally, it was predicted that higher levels of elaboration would lead to higher empathy after reading a message about mental illness.

**Stimuli**

The stimuli messages were designed to resemble Facebook posts (see Appendix H for stimuli message in experiment one). The layout of a post on this platform is familiar to most social media users given that 71% of individuals who use social networking sites have a Facebook account (Duggan & Smith, 2013). In addition to being a popular social network, this platform uses the apomediary concept via the "Share" feature. In short, users can share a post on their own page so that friends and followers can read the message, but it retains information about the message creator. The variables relevant to the goals of this dissertation naturally occur in Facebook posts, which helps increase the ecological validity of this study. Gender-neutral names were chosen to attempt to reduce effects related to the gender of the message creator or sharer. In addition, profile photos consisted of a dog or a beach to further neutralize reactions to the messages based on gender.

Message content was identical to the stimuli used in the pilot study as they were confirmed to elicit the desired perception of message quality. The messages were first-person narratives about depression and bipolar disorder. Empathy, a variable under investigation in this study, is likely to be activated when first-person pronouns are used and emotions are mentioned (Batson et al., 1995). Therefore, the stimuli all used first-person and specifically mentioned emotions or experiences from the point of view of the message creator.

Messages on the bipolar message topic were 207 words, and messages on the depression topic were 280 words. Both messages mentioned personal experiences, such as losing a job or getting specific advice from a relative. Bipolar messages contained five

mentions of personal experience and depression messages contained six mentions. Both messages also directly mentioned stigma. Bipolar messages mentioned stigma four times and depression messages mentioned stigma three times. Both messages contained direct statements that said the author had the mental illness.

**Message quality.** High-quality messages used proper grammar and spelling while low-quality messages misspelled words, did not properly capitalize, and used informal short hand (ex: b/c instead of because, & in place of and). Messages were identical in content, and only the grammar, spelling, and punctuation were manipulated to adjust quality.

**Message instructions.** Empathetic responses in similar research are typically varied when individuals are instructed to think about how the person in the narrative feels (Batson et al., 1995). Similar to previous studies related to empathy, two different instructions were used in this study. Perspective-taking instructions asked participants to pay close attention to how the person who wrote the message seems to feel. Objective instructions asked participants to try to be objective and pay attention to the facts presented in the message rather than feelings. Both instructions were similar to those used in previous studies attempting to elicit different levels of empathy from participants (Batson et al., 1997).

<center>**Procedures**</center>

MTurk's posting system recruited participants for the experiment. Potential participants viewed a welcome message on MTurk explaining the intent of the study (see Appendix I for the MTurk recruitment message). To reduce bias from individuals particularly interested in mental illness, the purpose of the study in recruitment messages

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was described as asking participants for opinions about stigmatized health conditions. All references to mental illness were excluded from the consent letter and the recruitment message.

Participants proceeded to the study link after agreeing to participate. The study was hosted on Qualtrics and required participants to input a verification number from the end of the study into MTurk's system for verification of completion. Only participants who passed four attention checks were included in the study and given compensation. Attention checks placed within the scale items for the message evaluations stated, "This is an attention check. Please answer _____." The required answers varied among agree, disagree, and neither agree nor disagree.

Participants completed a pretest that included media use and distractor questions about other stigmatized health conditions (see Appendix J for the pretest for experiment one and two). The distractor topics were alcohol addiction, obesity, drug addiction, and nicotine addiction. Data collected for the distractor questions were not analyzed in any way. Participants answered questions about familiarity with each condition, personal diagnosis of the listed conditions, knowing someone with one of the conditions, and interest in the disease. Participants answered attitudinal questions about each condition to provide pretest measures for the outcome variables in this study.

Next, participants viewed two randomly presented messages (see Appendix H for message stimuli). Each participant viewed one depression message and one bipolar disorder message. Each message condition varied by quality (high or low) and instructions provided (perspective-taking or objectivity focus) for a total of eight message conditions. After viewing each message, participants responded to a series of statements

about the quality of the message, empathetic responses, and elaboration levels while reading (see Appendix K for posttest questionnaire for experiment one). Once participants viewed two randomly assigned messages they proceeded to the posttest. The posttest asked the same questions from the pretest related to attitudes and desired social distance from people with a particular medical condition, as well as demographics. Only one distractor variable, alcohol addiction, was included before the mental illness attitudes to reduce the time to complete the study.

Participants then viewed a debriefing message that included information about resources for all of the stigmatized health conditions mentioned in the study (see Appendix L for the debriefing message). Participants then received a verification number and returned to MTurk to enter the number for compensation.

## Participants

Amazon's Mechanical Turk (MTurk) service recruited 438 participants for this study. Criteria for participating in this study included living in the U.S., being 18 years old or more, having native English fluency, and being a user of social media sites, which was defined as visiting a social media site at least once a week. The sample reduced to 396 participants after removing individuals who did not pass four out of five attention checks or failed to complete measures for outcome variables.

Participants received $3.00 as compensation for work on this study. This amount was increased from the pilot study rate for several reasons. First, feedback from pilot study participants suggested using a minimum wage equivalent for the amount of time the study takes. Participants in the pilot study took less than 20 minutes to complete the questionnaires. This experiment was longer than the pilot study and was estimated to take

30 minutes to complete. Assuming a minimum wage rate of $7.25 per hour, $3.00 for 20-30 minutes of work was an appropriate compensation. Previous research suggests that monetary compensation is the primary reason U.S.-based MTurk users participate in studies on the service (Litman, Robinson, & Rosenzweig, 2015). This suggests that participation is motivated by higher compensation. When MTurk workers are offered more compensation, fewer participants are removed from the data analysis for failing attention checks or incomplete responses (Litman et al., 2015), and the time to collect data decreases (Buhrmester, Kwang, & Gosling, 2011).

## Measures

### Pretest Questionnaire

The pretest questionnaire for experiment one measured media use and three model-related constructs prior to exposure to the stimuli messages (see Appendix J for the pretest measures). First, general media use questions asked how often participants used newspapers, television, news programs, radio, and the internet in general. Participants indicated frequency of use for each medium from the following options: several times a day, once a day, 3-5 days per week, 1-2 days per week, every few weeks, less often, never used. After examining the items, it was decided that only a few were logically related and might influence the outcome of this study. These items were frequency of using the local news, network news, cable news, and newspapers. These measures did not record data in a way that was appropriate for averaging to a scale. Each answer was a category that represents a time range and the categories were not arranged in equal intervals. However, it might be relevant to know how often participants use news

media. To overcome the scale validation issues, a single score of frequency of news media use was calculated.

The variable ***news media use*** was calculated by taking the maximum value of all answers to the news media items. For example, if any of the four news media was answered as being visited "several times a day," the individual received "several times a day" as a news media use score. This variable should give a sense for how often participants use news media on a weekly basis (see Table 4.1).

*Table 4.1 News Media and Social Media Use Descriptives for Experiment One (N = 396).*

| Measure | | *n* | Percentage |
|---|---|---|---|
| News Media Use | Several times a day | 312 | 78.8 |
| | About once a day | 58 | 14.6 |
| | 3-5 days a week | 21 | 5.3 |
| | 1-2 days a week | 5 | 1.3 |
| | Every few weeks or less | 0 | 0 |
| | | | |
| Social Media Use | Several times a day | 118 | 29.9 |
| | About once a day | 113 | 28.6 |
| | 3-5 days a week | 79 | 20.0 |
| | 1-2 days a week | 27 | 6.8 |
| | Every few weeks or less | 58 | 14.7 |

*Note:* Percentages may not add to 100 due to rounding.

Answers about social media use were recorded in the same way as news media use and were not appropriate for combining into a scale. Social media platforms included in this study included Facebook, Twitter, Instagram, Tumblr, and Pinterest. A single score of frequency of social media use was calculated. The variable ***social media use*** was calculated by taking the maximum value of all social media use answers. For example, if any individual platform was answered as being visited "once or twice a week," the

individual received "once or twice a week" as a social media use score. This variable

should logically give a sense for how often participants use social media on a weekly

basis (see Table 4.1).

Participants indicated if they have a mental illness by answering a yes or no

question. In addition, participants answered yes or no for whether a close friend, distant

acquaintance, close family member, distant family member, partner/significant other, or

work/school peer has a mental illness (see Table 4.2).

Table 4.2 Descriptives for Personal Diagnosis and
Knowing Someone with a Mental Illness in Experiment
One (N = 396).

| Person with Diagnosis | | $n$ | Percentage |
|---|---|---|---|
| Self | Yes | 82 | 20.7 |
| | No | 314 | 79.3 |
| Close friend | Yes | 98 | 24.7 |
| | No | 298 | 75.3 |
| Close family | Yes | 147 | 37.1 |
| | No | 249 | 62.9 |
| Work/school peer | Yes | 61 | 15.4 |
| | No | 335 | 84.6 |
| Significant other | Yes | 29 | 7.3 |
| | No | 367 | 92.7 |

Note: Percentages may not add to 100 due to rounding.

Questions regarding familiarity with mental illness and whether or not the

participant has or knows someone who has a mental illness measured **personal**

**experience with mental illness**. Participants responded to a single question to measure

familiarity with mental illness. The answer options ranged from "very unfamiliar" (1) to

"very familiar" (5) and this variable was not changed in any way for analysis ($M = 4.02$,

$SD = .93$).

*Interest in mental illness* was measured using six Likert-type statements. Responses appeared on a five-point scale from "strongly disagree" (1) to "strongly agree" (5). Example statements include "I enjoy learning about mental illness," and "When I see a news story about mental illness, I usually skip it." A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one. The eigenvalue is based on Kaiser's criterion, which suggests using this cutoff value when the sample size is more than 250 and the average of the extracted communalities is more than .59 (Field, 2009; Kaiser, 1960). The scales used in this study meet these criteria.

The *interest in mental illness* scale was tested using all six items that measured this concept. This six-item scale explained 69.1% of the variance in the sample. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy tested the suitability of this sample to produce distinct factors (Yong & Pearce, 2013). Experts suggest that results of this test be above .50 to ensure reliability of factors (Yong & Pearce, 2013). The KMO measure for this scale was .86 (see Table 4.3). The mean of the six items was calculated to standardize to the five-point scale used in the original items. Interest in mental illness was calculated for each participant in this study ($M = 3.62$, $SD = .90$). Cronbach's alpha for the scale was .91, which is considered a satisfactory reliability score (Gliem & Gliem, 2003). Deleting items did not increase the alpha for this scale.

*Attitudes about mental illness* were measured using the Attributional Questionnaire (AQ) and Social Distance Scale (SDS) scales previously discussed in this dissertation. The AQ was developed specifically to measure stigmatized beliefs about mental illness (Corrigan et al., 2012). The SDS is a measure of social distance

preferences concerning mentally ill individuals, such as unwillingness to work with

someone with a mental illness (Boyd et al., 2010). These measures indicate a level of

stigmatized beliefs and thereby attitudes. Of particular interest to this project are changes

in these measures between the pretest and the posttest.

*Table 4.3 Factor Loadings for Factor Analysis with Varimax Rotation*
*of Interest in Mental Illness Scale.*

| Item | Interest in Mental Illness |
|---|---|
| I make a point to read and watch news stories about mental health. | **.75** |
| I enjoy learning about mental health issues. | **.70** |
| To be and stay healthy, it's critical to be informed about mental health issues. | **.70** |
| I need to know about mental health issues so I can keep myself and my family healthy. | **.64** |
| When I see a news story about mental health, I usually skip it.[a] | **.62** |
| I'm not really interested in mental health topics.[a] | **.74** |

[a] Items were reverse-coded due to question wording.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part
of the final scale. Cronbach's alpha for interest in mental illness was .91.

The AQ measured beliefs about dangerousness of individuals with mental illness

and perceptions of blame for the condition. Twelve statements measured responses on a

Likert-type scale with five response options between "strongly disagree" (1) and

"strongly agree" (5). Example statements include, "I feel unsafe around people with

mental illness," and "The cause of a person's mental illness is completely under his or her

control."

A principle-components factor analysis using varimax rotation with oblique extraction identified two components with an eigenvalue more than one for the Attributional Questionnaire (AQ). Both components had logical ties between the items that loaded, and no cross-loadings were detected. Two separate scales were created from these measures based on the loading scores: danger and blame.

The *danger* scale included four items that related to the dangerousness of individuals with mental illness. This four-item scale explained 66.6% of the variance in the sample and the KMO measure for this scale was .80 (see Table 4.4). Adding the four items together and dividing the total by four to standardize to the five-point measure created the scale. Danger was calculated for each participant in this study (Pretest: $M = 3.14$, $SD = .83$; Posttest: $M = 3.28$, $SD = .85$). Cronbach's alpha for the scale was .83. Deleting items did not increase the alpha for this scale.

The *blame* scale included three items that related to placing personal blame on individuals with mental illness. This three-item scale explained 70.3% of the variance in the sample, and the KMO measure for this scale was .70 (see Table 4.4). Adding the three items together and dividing the total by three to standardize to the five-point measure created the scale. Blame was calculated for each participant in this study (Pretest: $M = 4.38$, $SD = .70$; Posttest: $M = 4.03$, $SD = .72$). Cronbach's alpha for the scale was .78. Deleting items did not increase the alpha for this scale.

The SDS measured preferences for distance from individuals with mental illness. Six statements measured willingness to perform several actions on a Likert-type scale with five response options between "very unwilling" (1) and "very willing" (5). Example statements include, "How willing are you to rent a room in your home or be roommates

with someone with a mental illness?" and "How willing are you to be friends with a

person with mental illness?" A principle-components factor analysis using varimax

rotation with oblique extraction identified one component with an eigenvalue more than

one (see Table 4.5).

*Table 4.4 Factor Loadings for Factor Analysis with Varimax Rotation for Attributional Scale Mental Illness Attitudes.*

| Item | Danger | Blame |
|---|---|---|
| I don't think people with mental illness are any more dangerous than the average person. | **.55** | -.22 |
| I feel unsafe around people with mental illness.[b] | **.64** | -.15 |
| I think persons with mental illness pose a risk to other people.[b] | **.60** | .02 |
| People with mental illness scare me.[b] | **.69** | -.49 |
| The cause of a person's mental illness is completely under his or her control.[b] | .40 | **.58** |
| If someone has a mental illness, it is his or her own fault.[b] | -.22 | **.63** |
| Most people with mental illness are fully responsible for their condition.[b] | .31 | **.56** |
| I pity people who have a mental illness. | .07 | .45 |
| I have sympathy for mentally ill individuals. | **-.52**[a] | **.55**[a] |
| I would help a person with a mental illness if asked. | **-.45**[a] | **.72**[a] |
| People with mental illness can recover if they get the right treatment. | -.38 | .02 |
| Our society should do more to protect people with mental illness. | .14 | .32 |

[a] Items were removed from both scales due to cross-loading or non-loading.
[b] Items were reverse-coded due to question wording such that 1 = less stigmatized beliefs and 5 = more stigmatized beliefs.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final scale in each column. Cronbach's alpha for danger was .83 and blame was .78.

The ***social distance*** scale included six items. This six-item scale explained 68.9%

of the variance in the sample and the KMO measure for this scale was .87. Adding the six

items together and dividing the total by six to standardize to the five-point measure

created the scale. Social distance was calculated for each participant in this study (Pretest:

$M = 2.97$, $SD = 1.01$; Posttest: $M = 3.01$, $SD = 1.01$). Cronbach's alpha for the scale was

.91. Deleting items did not increase the alpha for this scale.

*Table 4.5 Factor Loadings for Factor Analysis with Varimax Rotation of Social Distance Scale.*

| Item: How willing are you to… | Social Distance |
|---|---|
| Rent a room in your home to or be roommates with someone with a mental illness? | **.85** |
| Work on the same job as someone with a mental illness? | **.87** |
| Have someone with a mental illness as a neighbor? | **.88** |
| Date a person with a mental illness? | **.83** |
| Be friends with a person with a mental illness? | **.82** |
| Leave a child in the care of someone with a mental illness? | **.72** |

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final scale. Cronbach's alpha the social distance scale was .91.

**Posttest Questionnaire**

Each message condition was followed by a set of questions related to the stimulus

viewed (see Appendix K for posttest measures). Six Likert-type statements evaluated

*elaboration*. These measures were adapted from previous ELM studies (Reynolds, 1997).

Example statements included, "I was not very attentive to the ideas," and "I was

reflecting on the implications of the arguments." Responses varied on a five-point scale

between "strongly disagree" (1) and "strongly agree" (5). This measure was converted

into a scale to indicate the amount of elaboration for each participant and message, with

1 = very low elaboration and 5 = very high elaboration.

A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one (see Table 4.6). The *elaboration* scale included six items related to how much thought the participant put into processing the message. This six-item scale explained 48.1% of the variance in the sample and the KMO measure for this scale was .79. Reliability analysis suggested that removing one of the items would increase Cronbach's alpha. One item, "I was not very attentive to the ideas in this message," was removed, and the remaining five items were added together then divided by five to standardize to the five-point measure created the scale. Message elaboration was calculated for responses after exposure to each stimulus message for each participant. This scale had a Cronbach's alpha of .73.

*Table 4.6 Factor Loadings for Factor Analysis with Varimax Rotation of Elaboration.*

| Item: | Elaboration |
|---|---|
| I was attempting to analyze the issues in the message. | **.69** |
| I was spending a lot of effort. | **.69** |
| I was searching my mind in response to the ideas. | **.77** |
| I was reflecting on the implications of the arguments. | **.71** |
| I was distracted by other thoughts not related to the message.[b] | **.71** |
| I was not very attentive to the ideas in this message.[b] | **.62**[a] |

[a] Items were removed from the scale to increase reliability.
[b] Items were reverse-coded due to question wording such that 1 = less elaboration and 5 = more elaboration.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final scale. Cronbach's alpha the elaboration scale was .73.

Nine statements evaluated *perceived message quality*. Responses fell on a five-point scale between "strongly disagree" (1) and "strongly agree" (5). These statements

addressed two attributes of message quality: writing quality and argument quality. They were the same evaluation questions from the pilot study with the empathy-related questions removed. Examples of the quality statements include, "The message was not written well," and "The message was convincing."

A principle-components factor analysis using varimax rotation with oblique extraction identified two components with an eigenvalue more than one for the message evaluations (see Table 4.7). Both components had logical ties between the items that loaded. After looking at the loading factors, it was concluded that there were no cross-loadings between the two factors. Cross-loading occurs when a single item is strongly correlated with two or more constructs, which would indicate that the item is not mutually exclusive to a single construct (Costello & Osborne, 2005). Cross-loadings were operationally defined as any item having a loading score of .32 or higher on two or more factors, which is congruent with general recommendations for identifying cross-loadings (Costello & Osborne, 2005). Two separate scales were created from message evaluation items based on the loading scores: argument quality and writing quality.

The *perceived argument quality* scale included five items that related to the persuasiveness of the message and believability of the scenario. This five-item scale explained 73.2% of the variance in the sample, and the KMO measure for this scale was .85. Adding the five items together and dividing the total by five to standardize to the five-point measure created the scale. Argument quality was calculated for each message in this study. Cronbach's alpha for the scale was .91. Deleting items did not increase the alpha for this scale.

The ***perceived writing quality*** scale included four items that related to the quality of writing for the message. This four-item scale explained 67.7% of the variance in the sample, and the KMO measure for this scale was .77. Adding the four items together and dividing the total by four to standardize to the five-point measure created the scale. Perceived writing quality was calculated for each message in this study. Cronbach's alpha for the scale was .84. Deleting items did not increase the alpha for this scale.

*Table 4.7 Factor Loadings for Factor Analysis with Varimax Rotation for Message Quality.*

| Item | Argument | Writing |
|---|---|---|
| The message made its point effectively. | **.87** | .13 |
| The message was convincing. | **.92** | -.20 |
| The message was persuasive. | **.76** | .02 |
| The message was believable. | **.83** | -.40 |
| The message gave strong reasons for supporting individuals with mental illness. | **.89** | .33 |
| I liked the message. | .41 | **.79** |
| The message was easy to understand. | .34 | **.72** |
| The message was not well written.[a] | .17 | **.88** |
| The message was of poor quality.[a] | .44 | **.90** |

[a] Items were reverse-coded due to question wording such that 1 = lower quality and 5 = higher quality.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final scale in each column unless otherwise noted by superscripts. Cronbach's alpha for argument quality was .91 and writing quality was .84.

Eleven Likert-type statements measured ***empathy***. These items were from the Empathy Response Scale (ERS), which was originally developed to measure empathetic response to HIV/AIDS personal narratives (Campbell & Babrow, 2004). Example statements included "I felt the same feelings expressed by the message writer," and "I

was moved by the writer's experience." Participants chose a response on a five-item scale from "strongly disagree" (1) to "strongly agree" (5).

A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one for the message evaluations. The ***empathy*** scale included seven items that related to how much empathy participants reported after reading a stimulus message. This seven-item scale explained 57.5% of the variance in the sample, and the KMO measure for this scale was .87. Adding the seven items together and dividing the total by seven to standardize to the five-point measure created the scale. Empathy was calculated for each message in this study (see Table 4.8). Cronbach's alpha for the scale was .87. Deleting items did not increase the alpha for this scale.

*Table 4.8 Factor Loadings for Factor Analysis with Varimax Rotation of Empathy Scale.*

| Item: | Interest in Mental Illness |
|---|---|
| I felt the same feelings expressed by the message writer. | **.56** |
| I was moved by the writer's experience. | **.81** |
| I could really see how someone could have a bad experience like the one talked about in the message. | **.73** |
| I believe the situation described in the message is realistic. | **.85** |
| I felt sympathetic towards the writer of the message. | **.86** |
| I felt no concern for people like the one who wrote the message.[a] | **.79** |
| I did not feel emotionally involved.[a] | **.66** |

[a] Items were reverse-coded due to question wording such that 1 = lower quality and 5 = higher quality.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final scale. Cronbach's alpha for the empathy scale was .87.

## Random Assignment

It was important to test that treatment groups were indeed randomly assigned and that there were no significant differences among the groups. A series of chi-square and analysis of variance (ANOVAs) were used to test for random assignment of pretest variables to stimuli messages. Distribution was tested within each message topic. Bipolar messages were analyzed based on participant assignment to the following messages: 1) high-quality message with perspective-taking instructions, 2) low-quality message with perspective-taking instructions, 3) high-quality message with objectivity instructions, and 4) low-quality message with objectivity instructions. Depression messages were analyzed based on participant assignment to the following message: 5) high-quality message with perspective-taking instructions, 6) low-quality message with perspective-taking instructions, 7) high-quality message with objectivity instructions, and 8) low-quality message with objectivity instructions.

Chi-square tests revealed that there were no significant differences in the assignment to treatment conditions by gender, race/ethnicity, age (measured categorically), education, and employment status. There was no significant difference in distribution of yearly household income categories within depression messages, but there was a significant difference within bipolar messages, $\chi^2 (15, N = 395) = 26.66, p = .03, V = .09$.

Several other variables were tested to evaluate the distribution between the messages. One-way analysis of variance (ANOVA) revealed that there was no significant different in the assignment to treatment conditions by pretest measures of interest in mental illness, familiarity with mental illness, pretest blame, and pretest social distance.

There was no significant difference in distribution of pretest danger means within bipolar messages, but there was a significant difference within depression messages, $F(3, 391) = 2.99$, $p = .03$, $\eta^2 = .26$. Bonferroni *post hoc* analysis revealed that pretest danger was significantly lower for participants in the high-quality depression message with perspective-taking instructions condition ($M = 2.96$, $SD = .86$) than participants in the low-quality depression message with objectivity instructions ($M = 3.30$, $SD = .78$).

## Order-Effects Testing

Stimuli message order was randomize to control for order effects. However, it is still important to test that the order of message exposure did not significantly influence the outcome variables for this study. Each participant saw one depression message and one bipolar message. Each message varied on quality level and instructions provided. These messages were presented to participants in random order. There were a total of 16 message pairs. Given that each pair could vary by order (for example, a bipolar message followed by depression message or depression message followed by bipolar message), a total of 32 unique message orders were tested. ANOVA compared the viewing order of each message pair on posttest danger, blame, and social distance.

There was a significant order effect for posttest blame for participants who saw the low-quality bipolar message with perspective-taking instructions and the high-quality depression message with perspective-taking instructions, $F(1, 17) = 7.54$, $p = .01$, $\eta^2 = .31$. Bonferroni *post hoc* analysis revealed that posttest blame was significantly higher for participants who viewed the depression message first ($M = 4.67$, $SD = .50$) than participants who viewed the bipolar message first ($M = 3.76$, SD $= .96$).

There was also a significant order effect for posttest blame for participants who saw the low-quality bipolar message with perspective-taking instructions and the low-quality depression message with perspective-taking instructions, $F(1, 31) = 6.24$, $p = .02$, $\eta^2 = .17$. Bonferroni *post hoc* analysis revealed that posttest blame was significantly higher for participants who viewed the depression message first ($M = 4.76$, $SD = .11$) than participants who viewed the bipolar message first ($M = 4.26$, SD = .16).

Viewing a bipolar message prior to a depression message, or vice versa, did not significantly affect posttest measures of preferred social distance. Given these results, further analyses were limited to comparing messages within disease topic.

### Participant Demographics

The sample was 52.5% female ($n = 208$) and 46.2% male ($n = 183$). Participants aged 25-34 comprised the largest portion of the sample at 43.5% ($n = 172$), followed by 35-44 at 21.0% ($n = 83$). A majority of the sample identified as White or Caucasian (76.5%, $n = 303$), followed by Black or African-American (8.6%, $n = 34$). Table 4.9 contains the basic demographic information for the sample.

Participants with an associate or bachelor degree were the largest education demographic at 49.5% ($n = 196$), followed by individuals with some college at 28.8% ($n = 114$). Full-time employment was the most frequently reported status (58.2%, $n = 230$), followed by self employment (13.2%, $n = 52$). Individuals who reported a household income of $20,000-$39,999 comprised the highest percentage of the sample at 33.6% ($n = 123$), followed by $40,000-$59,999 (20.0%, $n = 79$) and more than $80,000 (19.4%, $n = 58$). A full summary of education, employment, and income statistics is presented in Table 4.10.

*Table 4.9 Demographic Descriptions for Experiment One.*

|        |                          | *n* | Percentage |
|--------|--------------------------|-----|------------|
| Gender | Female                   | 208 | 52.5       |
|        | Male                     | 183 | 46.2       |
|        | Other                    | 3   | 0.8        |
|        |                          |     |            |
| Age    | 18 – 24                  | 55  | 13.9       |
|        | 25 – 34                  | 172 | 43.5       |
|        | 35 – 44                  | 83  | 21.0       |
|        | 45 – 54                  | 53  | 13.4       |
|        | 55 – 65                  | 27  | 6.8        |
|        | Over 65                  | 5   | 1.3        |
|        |                          |     |            |
| Race   | White                    | 303 | 76.5       |
|        | Black or African American| 34  | 8.6        |
|        | Hispanic or Latino       | 27  | 6.8        |
|        | Asian or Asian American  | 25  | 6.3        |
|        | Native American          | 7   | 1.8        |

*Note: N*'s range from 395 to 396 due to occasional missing data. Entries are in percentages. Age was measured using categorical options. Percentages for each demographic variable may not add to 100 due to rounding.

## Results

Several research questions and hypotheses were put forth in the second chapter of this dissertation. Specific predictions regarding perceived message quality, elaboration, empathy, and attitudes about mental illness were analyzed. Of particular interest was the influence of elaboration on empathy reported after viewing the message. It was predicted that perceived argument quality, elaboration, and empathy would all influence attitudes about mental illness. Empathy was predicted to have a mediating effect on the relationship between elaboration and mental illness attitudes. Additional analyses answered research questions that did not present specific predictions about the relationships between variables, such as how message quality influenced empathetic responses. These results are explored at the end of this section to further explicate how

ELM variables fit into the proposed model described in Chapter Two. Analyses are

organized by outcome variables in this section.

*Table 4.10 Education, Employment, and Income Descriptives for Experiment One.*

|  |  | *n* | Percentage |
|---|---|---|---|
| Education | High school or less | 37 | 9.4 |
|  | Some college | 114 | 28.8 |
|  | Associate or bachelor degree | 196 | 48.9 |
|  | Master or PhD degree | 48 | 12.1 |
| Employment | Full-time | 230 | 58.2 |
|  | Part-time | 49 | 12.4 |
|  | Unemployed | 31 | 7.8 |
|  | Self-employed | 52 | 13.2 |
|  | Retired | 10 | 2.5 |
| Household Income | Less than $19,999 | 57 | 14.4 |
|  | $20,000 – $39,999 | 123 | 33.6 |
|  | $40,000 – $59,999 | 79 | 20.0 |
|  | $60,000 – $79,999 | 59 | 14.8 |
|  | More than $80,000 | 77 | 19.4 |

*Note: N'*s range from 395 to 396 due to occasional missing data. Percentages for each demographic variable may not add to 100 due to rounding.

**Perceived Message Quality**

**H3** predicted that messages intended to be high quality would receive higher

quality evaluations than messages intended to be low quality. Perceived argument quality

and perceived writing quality were analyzed within each message topic. This hypothesis

was supported, suggesting that the high- and low-quality message manipulations were

successful.

**Perceived argument quality.** Although the stimuli were pretested, it is important to test perceived quality as reported by participants. High- and low-quality messages within topic were compared. An independent-samples $t$-test compared perceived argument quality between bipolar messages intended to be low- or high-quality. There was a significant effect for intended message quality, $t(372) = 3.74$, $p < .001$, $r = .20$, with high-quality bipolar messages ($M = 3.92$, $SD = .82$) receiving higher perceived argument scores than low-quality bipolar messages ($M = 3.57$, $SD = 1.02$).

An independent-samples $t$-test compared perceived argument quality between depression messages intended to be low- or high-quality. There was a significant effect for intended message quality, $t(390) = 3.00$, $p = .003$, $r = .15$, with high-quality depression messages ($M = 4.04$, $SD = .85$) receiving higher perceived argument quality than low-quality depression messages ($M = 3.77$, $SD = .90$).

No specific predictions were made regarding how argument quality evaluations would differ between messages with perspective-taking instructions and objectivity instructions. Independent-samples $t$-tests revealed no significant differences in argument quality between messages with perspective-taking or objectivity instructions for either bipolar or depression messages.

**Perceived writing quality.** Independent-samples $t$-tests analyzed the difference in perceived writing quality between bipolar messages intended to be low- or high-quality (see Table 4.11). Levene's Test of Equality of Variances revealed that the two groups did not have equal variances ($F = 26.25$, $p < .001$), and statistics reported for this test are from the $t$-test statistic that does not assume equal variances. There was a significant effect for intended message quality, $t(364) = 8.55$, $p < .001$, $r = .50$, with high-quality

bipolar messages ($M = 4.05$, $SD = .74$) receiving higher perceived writing quality than low-quality bipolar messages ($M = 3.30$, $SD = .98$).

Independent-samples *t*-tests analyzed the difference in perceived writing quality between depression messages intended to be low or high quality. Levene's Test of Equality of Variances revealed that the two groups did not have equal variances ($F = 21.99$, $p < .001$), and statistics reported for this test are from the *t*-test statistic that does not assume equal variances. There was a significant effect for intended message quality, $t(363) = 8.66$, $p < .001$, $r = .51$, with high-quality depression messages ($M = 4.09$, $SD = .74$) receiving better perceived writing quality than low-quality depression messages ($M = 3.33$, $SD = .99$).

No specific predictions were made regarding how quality evaluations would differ between messages with perspective-taking instructions and objectivity instructions. Independent-samples *t*-tests analyzed the difference in perceived writing quality between the instruction conditions. No significant differences were found between instruction conditions for either bipolar or depression messages.

No particular prediction was made regarding the interaction between intended message quality and instructions. However, it might be useful to know if certain conditions resulted in different perceptions of message quality. One-way analysis of variance (ANOVA) compared perceived quality between the four bipolar disorder message conditions: (1) high-quality with perspective-taking instructions, (2) low-quality with perspective-taking instructions, (3) high-quality with objectivity instructions, and (4) low-quality with objectivity instructions. The groups did not have equal variances as reported by Levene's Test of Equality of Variances ($p < .001$). This means that the

assumption of homogeneity of variances, which is a critical assumption of the ANOVA test, was violated. The Brown-Forsythe adjusted $F$ statistic was used to adjust for this violation of the ANOVA assumptions.

A main effect for bipolar message condition was found for perceived argument quality, $F(3, 385) = 5.89$, $p = .001$, $\eta^2 = .04$. Since the homogeneity of variances was violated, the Games-Howell *post hoc* test was used instead of the Bonferroni *post hoc* as it accounts for the use of the Brown-Forsythe adjusted $F$ statistic (Kromrey & La Rocca, 1995). Games-Howell *post hoc* analyses revealed that high-quality bipolar messages with either perspective-taking instructions ($M = 3.99$, $SD = .79$) or objectivity instructions ($M = 3.86$, $SD = .85$) elicited higher perceived argument quality than the low-quality bipolar message with objectivity instructions ($M = 3.46$, $SD = 1.08$).

ANOVA also compared perceived writing quality between the four bipolar disorder message conditions. The groups had unequal variances as reported by Levene's Test of Equality of Variances ($F = 9.43$, $p < .001$). The Brown-Forsythe adjusted $F$ statistic was used to correct for this violation of the ANOVA assumptions. A main effect for bipolar message condition was found for perceived writing quality, $F(3, 361) = 24.74$, $p < .001$, $\eta^2 = .16$. Games-Howell post hoc analyses revealed that high-quality bipolar messages with either perspective-taking instructions ($M = 4.09$, $SD = .78$) or objectivity instructions ($M = 4.02$, $SD = .70$) evoked higher perceived writing quality than low-quality bipolar messages with either perspective-taking instructions ($M = 3.24$, $SD = .98$) or objectivity instructions ($M = 3.36$, $SD = .98$).

*Table 4.11 Means of Perceived Argument Quality, Perceived Writing Quality, and Empathy for Bipolar Messages.*

| | Intended Message Quality | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | High Quality | | | | Low Quality | | | |
| | Perspective-Taking Instructions | | Objectivity Instructions | | Perspective-Taking Instructions | | Objectivity Instructions | |
| | Mean | *n* | Mean | *n* | Mean | *n* | Mean | *n* |
| Argument quality | 3.99 (.79)* | 95 | 3.86 (.85)* | 98 | 3.68 (.96) | 98 | 3.46 (1.08)* | 98 |
| Writing quality | 4.09 (.78)* | 98 | 4.02 (.70)* | 97 | 3.24 (.98)* | 97 | 3.36 (.98)* | 99 |
| Empathy | 3.91 (.72) | 99 | 3.77 (.82) | 97 | 3.66 (.89) | 98 | 3.79 (.81) | 96 |

* Difference between means in same row is significant, $p < .001$.

*Note:* High scores indicate greater quality and empathy.

*Note:* Comparisons among treatment groups were conducted using one-way analyses of variance. Standard deviations are in parentheses.

ANOVA also compared perceived argument quality between the four depression message conditions: (5) high-quality message with perspective-taking instructions, (6) low-quality message with perspective-taking instructions, (7) high-quality message with objectivity instructions, and (8) low-quality message with objectivity instructions. A main effect for depression message condition was found for perceived argument quality, $F(3, 388) = 3.23$, $p = .02$, $\eta^2 = .02$. Tukey HSD *post hoc* analyses revealed that the high-quality depression message with perspective-taking instructions ($M = 4.08$, $SD = .82$) elicited higher perceived argument quality than the low-quality depression message with objectivity instructions ($M = 4.08$, $SD = .92$).

ANOVA tests also compared perceived writing quality between the four depression message conditions. The groups had unequal variances as reported by Levene's Test of Equality of Variances ($F = 7.70$, $p < .001$). The Brown-Forsythe adjusted $F$ statistic was used to adjust for this violation of the assumptions of the ANOVA test. A main effect for depression message condition was found for perceived writing quality, $F(3, 388) = 25.35$, $p < .001$, $\eta^2 = .16$. Games-Howell *post hoc* analyses revealed that high-quality depression messages with either perspective-taking instructions ($M = 4.02$, $SD = .78$) or objectivity instructions ($M = 4.16$, $SD = .70$) evoked higher perceived writing quality scores than low-quality depression messages with either perspective-taking instructions ($M = 3.35$, $SD = .97$) or objectivity instructions ($M = 3.30$, $SD = 1.02$).

**Empathy**

**H14** predicted that participants exposed to perspective-taking instructions would have higher empathy than individuals with objective instructions. This hypothesis was

not supported, suggesting that the manipulation of message instructions did not create the intended effect. Differences in empathy between intended message quality and interaction between instructions and quality were analyzed within each topic to explore if variables other than instructions influenced empathy.

   **Intended message quality.** Independent-samples $t$-tests analyzed the difference in empathy between bipolar messages intended to be low- or high-quality and between bipolar messages with perspective-taking or objectivity instructions. No significant differences were found. Independent-samples $t$-tests analyzed the difference in empathy between depression messages. There was no significant difference in empathy between high- and low-quality depression messages or between depression messages with perspective-taking or objectivity instructions.

   **Instruction and quality interaction.** ANOVAs compared empathy among the four bipolar disorder message conditions, and there was no significant difference in empathy among them (see Table 4.11). ANOVA also compared empathy among the four bipolar disorder message conditions and found no significant differences among message conditions (see Table 4.12).

*Table 4.12 Means of Perceived Argument Quality, Perceived Writing Quality, and Empathy for Depression Messages.*

| | Intended Message Quality | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | High Quality | | | | Low Quality | | | |
| | Perspective-Taking Instructions | | Objectivity Instructions | | Perspective-Taking Instructions | | Objectivity Instructions | |
| | Mean | *n* | Mean | *n* | Mean | *n* | Mean | *n* |
| Argument quality | 4.08 (.82)* | 97 | 4.01 (.88) | 99 | 3.82 (.88) | 97 | 3.74 (.92)* | 99 |
| Writing quality | 4.02 (.78)** | 97 | 4.16 (.70)** | 98 | 3.35 (.97)** | 98 | 3.30 (1.02)** | 99 |
| Empathy | 4.00 (.78) | 96 | 3.94 (.88) | 98 | 3.87 (.80) | 98 | 3.81 (.88) | 100 |

* Difference between means in same row is significant, $p < .05$.
** Difference between means in same row is significant, $p < .001$.

*Note:* High scores indicate greater quality and empathy.

*Note:* Comparisons among treatment groups were conducted using one-way analyses of variance. Standard deviations are in parentheses.

**H15** predicted that individuals with higher elaboration after viewing a message about mental illness would have higher empathy than individuals with lower elaboration. A hierarchical regression analyzed the relationship between elaboration and empathy after viewing a message. A separate regression was run for each message topic. Empathy was the outcome variable. The first block contained demographic variables, and the second block contained elaboration.

The final model for bipolar messages was a significant predictor of empathy, $R^2 = .21$, $F(7, 351) = 13.59$, $p < .001$ (see Table 4.13). Elaboration was a significant predictor ($\beta = .40$, $p < .001$) such that an increase in elaboration of bipolar messages was associated with an increase in empathy.

*Table 4.13 Summary of Hierarchical Regression Analysis for Predicting Empathy From Elaboration After Viewing a Bipolar Message (N = 359).*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.42 | .20 | | 1.57 | .29 | |
| Education | -.19 | .11 | -.09 | .04 | .08 | .02 |
| Race/Ethnicity | .11 | .09 | .07 | -.13 | .10 | -.06 |
| Gender | -.01 | .03 | -.02 | .13 | .08 | .08 |
| Income | .14 | .04 | .19 | -.02 | .03 | -.04 |
| Age | .08 | .09 | .05** | .11 | .03 | .15** |
| Elaboration | | | | .48 | .06 | .40** |
| | | | | | | |
| $R^2$ | | .04 | | | .21 | |
| $\Delta R^2$ | | .04* | | | .17*** | |
| $F$ for $\Delta R^2$ | | 3.39* | | | 58.56*** | |

*Note:* Race was represented as a dichotomous variable with 1= white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*$p < .01$. **$p < .001$.

A similar result was found for depression messages. The final model for depression messages was a significant predictor of empathy, $R^2 = .18$, $F(7, 347) = 10.53$, $p < .001$ (see Table 4.14). Elaboration was a significant predictor ($\beta = .38$, $p < .001$), such that an increase in elaboration of depression messages was associated with an increase in empathy.

*Table 4.14 Summary of Hierarchical Regression Analysis for Predicting Empathy From Elaboration After Viewing a Depression Message (N = 355).*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | B | SE B | $\beta$ | B | SE B | $\beta$ |
| (Constant) | 3.80 | .21 | | 1.82 | .32 | |
| Education | .17 | .10 | .10 | .14 | .09 | .08 |
| Race/Ethnicity | -.01 | .11 | -.01 | .02 | .11 | .01 |
| Gender | .04 | .09 | .02 | .11 | .08 | .06 |
| Income | -.07 | .03 | -.14 | -.07 | .03 | -.13** |
| Age | .07 | .04 | .10 | .05 | .04 | .07 |
| Elaboration | | | | .48 | .06 | .38*** |
| $R^2$ | | .04 | | | .18 | |
| $\Delta R^2$ | | .04* | | | .14*** | |
| $F$ for $\Delta R^2$ | | 2.26* | | | 57.90*** | |

*Note:* Race was represented as a dichotomous variable with 1= white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*$p < .05$. **$p < .01$. ***$p < .001$.

**RQ5** asked how perceived message quality influenced empathetic responses to stimuli messages. A hierarchical regression analyzed the relationship between perceived writing quality, perceived argument quality, and empathy. A separate regression was run for each message topic. Empathy was the outcome variable examined. The first block

contained demographic variables and the second block had perceived writing quality and perceived argument quality.

The final model was a significant predictor of empathy after viewing a bipolar disorder message, $R^2 = .69$, $F(8, 339) = 94.32$, $p < .001$ (see Table 4.15). Perceived argument quality was a significant predictor ($\beta = .87$, $p < .001$) such that as this variable increased so did empathy. This large explanation of variance is mostly contributed to perceived argument quality, which suggests that empathetic reactions are directly related to the perceived quality of the mental illness message.

*Table 4.15 Summary of Hierarchical Regression Analysis for Predicting Empathy From Perceived Message Quality After Viewing a Bipolar Message (N = 348).*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| (Constant) | 3.47 | .20 | | .93 | .15 | |
| Education | -.08 | .09 | -.05 | .01 | .05 | .00 |
| Race/Ethnicity | -.19 | .11 | -.09 | -.03 | .06 | -.02 |
| Gender | .13 | .09 | .08 | .14 | .05 | .09*** |
| Income | -.01 | .03 | -.02 | -.02 | .02 | -.03 |
| Age | .14 | .04 | .19*** | .02 | .02 | .03 |
| Writing quality | | | | -.06 | .04 | -.07 |
| Argument quality | | | | .76 | .05 | .87*** |
| | | | | | | |
| $R^2$ | | .04 | | | .69 | |
| $\Delta R^2$ | | .04* | | | .65*** | |
| $F$ for $\Delta R^2$ | | 3.37** | | | 346.64*** | |

*Note:* Race was represented as a dichotomous variable with 1= white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*$p < .05$. **$p < .01$. ***$p < .001$.

The final model was also a significant predictor of empathy after viewing a depression message, $R^2 = .66$, $F(8, 346) = 84.37$, $p < .001$ (see Table 4.16). Perceived argument quality was a significant predictor ($\beta = .76$, $p < .001$), such that as this variable increased so did empathy. Again, a large portion of the variance in empathy is explained by perceptions of message argument quality.

Table 4.16 *Summary of Hierarchical Regression Analysis for Predicting Empathy From Perceived Message Quality After Viewing a Depression Message (N = 355).*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.82 | .21 | | .76 | .18 | |
| Education | .15 | .09 | .09 | .05 | .06 | .03 |
| Race/Ethnicity | -.06 | .11 | -.03 | .00 | .07 | .00 |
| Gender | .08 | .09 | .05 | .13 | .05* | .08 |
| Income | -.08 | .03 | -.15** | -.01 | .02 | -.02 |
| Age | .07 | .04 | .09 | -.01 | .02 | -.02 |
| Writing quality | | | | .05 | .04 | .06 |
| Argument quality | | | | .72 | .05 | .76*** |
| $R^2$ | | .03 | | | .67 | |
| $\Delta R^2$ | | .03* | | | .64*** | |
| $F$ for $\Delta R^2$ | | 2.53* | | | 361.46*** | |

*Note:* Race was represented as a dichotomous variable with 1= white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*$p < .05$. **$p < .01$. ***$p < .001$.

These regressions suggest that although the message manipulations may not have caused a difference in empathy, this outcome was influenced by perceptions of argument quality. In addition, the high $R^2$ values suggest a large effect for this relationship (Murphy & Myors, 2004).

**Message Elaboration**

**H5** was related to how message condition affected elaboration about the message. More specifically, it predicted that high-quality messages would produce more elaboration than low-quality messages.

Independent-samples *t*-tests analyzed the difference in elaboration between bipolar messages intended to be low- or high-quality. Levene's Test of Equality of Variances revealed that the two groups did not have equal variances, ($F = 4.28$, $p = .04$), and statistics reported for this test are from the *t*-test statistic that does not assume equal variances. There was a significant effect for message quality, $t(377) = 2.16$, $p = .03$, r = .11, with high-quality bipolar messages ($M = 4.02$, $SD = .62$) evoking more elaboration than low-quality bipolar messages ($M = 3.87$, $SD = .75$) (see Table 4.17).

There was no specific prediction regarding elaboration in relation to instruction or its interaction with intended message quality. However, this might be useful to know in the full context of the model created in this paper and these relationships were analyzed. Independent-samples *t*-tests analyzed the difference in elaboration between bipolar messages with perspective-taking and objectivity instructions. There was no significant difference.

One-way analysis of variance (ANOVA) compared elaboration among the four bipolar disorder message conditions: (1) high-quality with perspective-taking instructions, (2) low-quality with perspective-taking instructions, (3) high-quality with objectivity instructions, and (4) low-quality with objectivity instructions. A main effect for bipolar message viewed was found for elaboration, $F(3, 391) = 3.04$, $p = .03$, $\eta^2 = .02$. Tukey HSD *post hoc* analyses revealed that high-quality bipolar message with

perspective-taking instructions ($M = 4.07$, $SD = .64$) produced more elaboration than the low-quality bipolar message with perspective-taking instructions ($M = 3.78$, $SD = .78$) (see Table 4.17).

Independent-samples *t*-tests analyzed the difference in elaboration between depression messages intended to be low- or high-quality. The groups did not have equal variances as reported by Levene's Test of Equality of Variances ($F = 4.80$, $p = .03$), and the test statistic that does not assume equality of means was assessed. There was no significant difference in elaboration mean between high- and low-quality depression messages. Independent-samples *t*-tests also analyzed the difference in amount of elaboration between depression messages with perspective-taking or objectivity instructions. There was no significant difference

ANOVAs also compared amount of elaboration between the four depression message conditions: (5) high-quality message with perspective-taking instructions, (6) low-quality message with perspective-taking instructions, (7) high-quality message with objectivity instructions, and (8) low-quality message with objectivity instructions. There was no significant difference in elaboration mean between the four depression message conditions (see Table 4.17).

**H1** predicted that individuals with high issue involvement would be more likely to have higher elaboration after message exposure than individuals with low issue involvement. Issue involvement was defined as interest in mental illness, familiarity with mental illness, personal diagnosis, and knowing someone who was diagnosed with a mental illness.

*Table 4.17 Means of Elaboration for Bipolar and Depression Messages by Treatment Condition.*

| | Intended Message Quality | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | High Quality | | | | Low Quality | | | |
| | Perspective-Taking Instructions | | Objectivity Instructions | | Perspective-Taking Instructions | | Objectivity Instructions | |
| | Mean | *n* | Mean | *n* | Mean | *n* | Mean | *n* |
| Bipolar elaboration | 4.07 (.64)* | 100 | 3.97 (.60) | 99 | 3.78 (.78)* | 98 | 3.96 (.71) | 98 |
| Depression elaboration | 3.99 (.72) | 93 | 3.95 (.67) | 98 | 3.90 (.59) | 98 | 3.95 (.66) | 100 |

* Difference between means in same row is significant, *p* < .05.

*Note:* High scores indicate greater elaboration.

*Note:* Comparisons among treatment groups of the same message topic were conducted using one-way analyses of variance. Standard deviations are in parentheses.

Issue involvement variables were regressed on elaboration of each message topic to understand the relationship between these variables. Hierarchical regression was used to test this relationship. The first block in the regression contained demographic variables (age, gender, race, education). The second block contained media-related variables (news media use, social media use). The third block contained issue involvement variables (interest in mental illness, familiarity with mental illness, personal diagnosis, diagnosis of a close friend or family member, and diagnosis of a distant friend or family member). This hypothesis was not supported for the bipolar messages, but was supported for the depression messages. The final multiple regression model for bipolar disorder message elaboration was not a significant predictor of elaboration.

The final multiple regression model for depression message elaboration was significant, $R^2 = .11$, $F(14, 339) = 2.53$, $p = .002$ (see Table 4.18). Gender ($\beta = -.14$, $p = .01$) significantly predicted elaboration of depression messages such that women were less likely to have higher elaboration levels after viewing the depression message (see Table 4.18). Interest in mental illness ($\beta = .21$, $p = .001$) significantly predicted elaboration of depression messages in a positive direction, as predicted. This suggests that individuals with higher interest in mental illness elaborated more on depression messages. Knowing a close friend or relative with a mental illness ($\beta = -.13$, $p = .03$) significantly predicted elaboration of depression messages in a negative direction. This suggests that if an individual knows a close friend or family member with a mental illness they elaborated less on depression messages.

*Table 4.18 Summary of Hierarchical Regression Analysis for Predicting Elaboration From Issue Involvement After Viewing a Depression Message (N = 357).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| (Constant) | 4.14 | .20 | | 3.89 | .32 | | 3.89 | .32 | |
| Age | .05 | .03 | .07 | .04 | .03 | .07 | .04 | .03 | .07 |
| Gender | -.14 | .07 | -.10 | -.14 | .07 | -.10 | -.14 | .07 | -.14** |
| Race/Ethnicity | .01 | .03 | .01 | .01 | .03 | .02 | .01 | .03 | .02 |
| Education | -.02 | .05 | -.02 | -.03 | .05 | -.03 | -.03 | .05 | -.03 |
| Income | -.01 | .03 | -.02 | -.01 | .02 | -.03 | -.01 | .02 | -.03 |
| News media use | | | | -.02 | .03 | -.04 | -.02 | .03 | -.04 |
| Social media use | | | | -.03 | .03 | -.07 | -.03 | .03 | -.07 |
| Interest in MI | | | | .11 | .06 | .10 | .11 | .06 | .21*** |
| Familiarity w/ MI | | | | | | | .08 | .04 | .11 |
| Personal MI | | | | | | | .04 | .03 | .07 |
| Close friend/family MI | | | | | | | -.14 | .07 | -.13* |
| | | | | | | | | | |
| $R^2$ | | .01 | | | .04 | | | .10 | |
| $\Delta R^2$ | | .01 | | | .02* | | | .06*** | |
| *F* for $\Delta R^2$ | | 1.06 | | | 4.34 | | | 6.04*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

**Mental Illness Attitudes**

      **H2** was related to how message elaboration influenced attitudes about mental illness. It predicted that higher elaboration would be positively related to posttest attitude measures. Hierarchical regression explored the relationship between elaboration of each message topic and posttest danger, blame, and social distance. This hypothesis was only partially supported. Results suggest that this prediction is supported only when predicting attitudes related to personal blame from elaboration, as shown below. The first block of the regression contained the same demographic variables previously described. The second block of the regression contained the same media-related variables previously described. The third block of the regression added elaboration.

      The final regression model for predicting mental illness attitudes placing blame on individuals using bipolar message elaboration was significant, $R^2 = .09$, $F(10, 347) = 3.54$, $p < .001$. Elaboration ($\beta = .15$, $p = .004$) and news media use ($\beta = -.11$, $p = .04$) were significant predictors along with several demographic variables (see Table 4.19). In other words, higher elaboration led to less stigmatized beliefs about mental illness.

      The final regression model for predicting mental illness attitudes related to danger using bipolar message elaboration was significant, $R^2 = .07$, $F(10, 356) = 2.75$, $p = .003$, but elaboration was not a significant predictor ($\beta = .04$, $p = .46$) and several demographic variables were significant predictors (see Table 4.19).

      The final regression model for predicting mental illness attitudes regarding social distance using bipolar message elaboration was significant, $R^2 = .08$, $F(10, 349) = 2.82$, $p = .002$, but elaboration was not a significant predictor ($\beta = .07$, $p = .18$), though several demographic variables were significant predictors (see Table 4.19).

*Table 4.19 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Elaboration After Viewing a Bipolar Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | SE B | $\beta$ | $B$ | SE B | $\beta$ | $B$ | SE B | $\beta$ |
| Step 1 | (constant) | 3.76 | .46 | | 3.69 | .38 | | 3.27 | .54 | |
| | Age | -.02 | .04 | -.03 | .11 | .04 | .16* | -.07 | .05 | -.08 |
| | Gender | .05 | .09 | .03 | -.01 | .07 | .00 | .14 | .11 | .07 |
| | Race/Ethnicity | -.13 | .04 | -.17*** | -.08 | .03 | -.12** | -.11 | .05 | -.12* |
| | Education | -.09 | .06 | -.08 | -.06 | .05 | -.06 | -.14 | .07 | -.11* |
| | Income | -.05 | .03 | -.10 | -.05 | .03 | -.10 | -.03 | .04 | -.05 |
| | $R^2 (\Delta R^2)$ | .07 (.07***) | | | .05 (.05***) | | | .06 (.06***) | | |
| Step 2 | News media use | .05 | .03 | .07 | .07 | .03 | .13** | .10 | .04 | .14* |
| | Social media use | -.02 | .07 | -.02 | .02 | .06 | .02 | -.09 | .08 | -.06 |
| | $R^2 (\Delta R^2)$ | .07 (.00) | | | .06 (.01) | | | .07 (.01**) | | |
| Step 3 | Elaboration | .05 | .06 | .04 | .17 | .05 | .16*** | .10 | .08 | .07 |
| | Final $R^2 (\Delta R^2)$ | .08 (.01**) | | | .09 (.03***) | | | .08 (.01**) | | |
| $F$ for final model | | 3.69*** | | | 5.58*** | | | 31.33*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

Similar results were found for the model predicting mental illness attitudes placing blame on individuals using depression message elaboration, $R^2 = .10$, $F(10, 342) = 3.71$, $p < .001$. Elaboration ($\beta = .18$, $p = .001$) and news media use ($\beta = -.12$, $p = .03$) were significant predictors along with several demographic variables (see Table 4.20). Again, this result suggests that higher levels of elaboration lead to less stigmatized beliefs about mental illness.

A similar result was found when predicting mental illness attitudes related to danger using depression message elaboration. Although the final model was significant, $R^2 = .07$, $F(10, 356) = 2.75$, $p = .003$, elaboration was not a significant predictor ($\beta = .04$, $p = .46$) (see Table 4.20).

Similar results were found when predicting mental illness attitudes regarding social distance using depression message elaboration. The overall model was significant, $R^2 = .08$, $F(10, 343) = 3.08$, $p = .001$, but elaboration was not a significant predictor ($\beta = .06$, $p = .230$), and several demographic variables were significant predictors (see Table 4.20).

**H4** predicted that participants who reported higher perceived message quality would have less stigmatized attitudes about mental illness. Hierarchical regression explored the relationship between perceived message quality of each message topic and posttest danger, blame, and social distance. This hypothesis was generally supported and suggests that perceived argument quality influenced attitudes about mental illness. The first block of the regression contained demographic variables, the second media-related variables, and the third added perceived argument quality and writing quality.

*Table 4.20 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Elaboration After Viewing a Depression Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 4.06 | .47 | | 3.79 | .39 | | 3.24 | .56 | |
| | Age | -.02 | .04 | -.02 | .11 | .04 | .16*** | -.07 | .05 | -.07 |
| | Gender | .04 | .09 | .02 | -.01 | .08 | -.01 | .17 | .11 | .08 |
| | Race/Ethnicity | -.14 | .04 | -.18*** | -.08 | .03 | -.13** | -.11 | .05 | -.13** |
| | Education | -.10 | .06 | -.09 | -.06 | .05 | -.07 | -.15 | .07 | -.12* |
| | Income | -.06 | .03 | -.10 | -.04 | .03 | -.08 | -.04 | .04 | -.06 |
| | $R^2\ (\Delta R^2)$ | .06 (.06***) | | | .06 (.06***) | | | .06 (.06***) | | |
| Step 2 | News media use | .05 | .03 | .07 | .06 | .03 | -.12* | .11 | .04 | .15*** |
| | Social media use | -.01 | .07 | -.01 | -.01 | .06 | -.01 | -.06 | .08 | -.04 |
| | $R^2\ (\Delta R^2)$ | .07 (.01) | | | .06 (.00) | | | .07 (.01) | | |
| Step 3 | Elaboration | -.03 | .07 | .04 | .17 | .06 | .18*** | .08 | .08 | .06 |
| | Final $R^2\ (\Delta R^2)$ | .07 (.00) | | | .09 (.03***) | | | .08 (.01) | | |
| $F$ for final model | | 3.92** | | | 5.31*** | | | 4.01*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

The final regression model for predicting mental illness attitudes related to danger from perceived bipolar message quality was significant, $R^2 = .09$, $F(11, 339) = 3.10$, $p = .001$, and perceived argument quality was a significant predictor ($\beta = .18$, $p = .05$) (see Table 4.21). In other words, when perceived argument quality is higher individuals have less stigmatized beliefs about the dangerousness of mental illness.

The final regression model for predicting mental illness attitudes related to placing blame on individuals from perceived bipolar message quality was significant, $R^2 = .09$, $F(11, 336) = 2.87$, $p = .001$, and perceived argument quality was a significant predictor ($\beta = .20$, $p = .03$) (see Table 4.21).

The final regression model for predicting attitudes related to social distance from individuals with mental illness using perceived bipolar message quality was significant, $R^2 = .09$, $F(11, 338) = 3.13$, $p < .001$, and perceived argument quality was a significant predictor ($\beta = .25$, $p = .005$) (see Table 4.21).

The final regression model for predicting mental illness attitudes related to danger from perceived depression message quality was significant, $R^2 = .11$, $F(11, 342) = 3.77$, $p < .001$, but perceived argument quality was not a significant predictor ($\beta = .18$, $p = .05$) (see Table 4.22).

The final regression model for predicting mental illness attitudes related to placing blame on individuals from perceived depression message quality was significant, $R^2 = .11$, $F(11, 339) = 3.99$, $p < .001$, and perceived argument quality was a significant predictor ($\beta = .26$, $p = .001$) (see Table 4.22).

Similar results were found for the depression message condition. The final regression model for predicting attitudes related to social distance from individuals with

*Table 4.21 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Message Quality After Viewing a Bipolar Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 3.50 | .43 | | 4.16 | .36 | | 3.13 | .51 | |
| | Age | -.05 | .04 | -.06 | .12 | .04 | .17 | -.09 | .05 | -.09 |
| | Gender | .08 | .09 | .05 | -.01 | .08 | -.01 | .15 | .11 | .07 |
| | Race/Ethnicity | -.14 | .04 | -.18*** | -.08 | .03 | -.13* | -.11 | .05 | -.12* |
| | Education | -.09 | .06 | -.09 | -.05 | .05 | -.06 | -.13 | .07 | -.10* |
| | Income | -.05 | .03 | -.09 | -.05 | .03 | -.10 | -.03 | .04 | -.05 |
| | $R^2\ (\Delta R^2)$ | .06 (.06***) | | | .06 (.06***) | | | .05(.05**) | | |
| Step 2 | News media use | .03 | .03 | .05 | .06 | .03 | .11* | .09 | .04 | .12* |
| | Social media use | -.04 | .07 | -.03 | .04 | .06 | .04 | -.08 | .08 | -.05 |
| | $R^2\ (\Delta R^2)$ | .06 (.00) | | | .06 (.00) | | | .06 (.01) | | |
| Step 3 | Writing quality | -.01 | .08 | -.01 | -.10 | .07 | -.14 | -.09 | .10 | -.09 |
| | Argument quality | .17 | .08 | .18* | .14 | .07 | .20* | .24 | .10 | .25** |
| | Final $R^2\ (\Delta R^2)$ | .09 (.03**) | | | .08 (.02) | | | .09 (.03**) | | |
| *F* for final model | | 4.42*** | | | 4.32*** | | | 3.91*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p < .05. **p < .01. ***p < .001.

*Table 4.22 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Message Quality After Viewing a Depression Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 2.94 | .44 | | 3.59 | .38 | | 2.52 | .52 | |
| | Age | -.02 | .04 | -.03 | .11 | .04 | .15*** | -.08 | .05 | -.08 |
| | Gender | .05 | .09 | .03 | .01 | .08 | .01 | .17 | .10 | .08 |
| | Race/Ethnicity | -.15 | .04 | -.20*** | -.07 | .03 | -.11* | -.12 | .04 | -.13* |
| | Education | -.08 | .06 | -.08 | -.05 | .05 | -.06 | -.14 | .07 | -.11** |
| | Income | -.03 | .03 | -.06 | -.03 | .03 | -.07 | -.02 | .04 | -.02 |
| | $R^2\ (\Delta R^2)$ | | .06 (.06**) | | | .06 (.06**) | | | .05 (.05**) | |
| Step 2 | News media use | .05 | .03 | .09 | .06 | .03 | .12* | .11 | .04 | .16*** |
| | Social media use | -.01 | .07 | .00 | .03 | .06 | .02 | -.08 | .08 | -.05 |
| | $R^2\ (\Delta R^2)$ | | .07 (.01) | | | .06 (.00) | | | .07 (.02) | |
| Step 3 | Writing quality | .07 | .07 | .08 | -.02 | .06 | -.03 | .06 | .08 | .06 |
| | Argument quality | .15 | .08 | .18 | .19 | .06 | .26*** | .20 | .09 | .17** |
| | Final $R^2\ (\Delta R^2)$ | | .11 (.04**) | | | .11 (.05***) | | | .12 (.05***) | |
| $F$ for final model | | | 5.28*** | | | 5.64*** | | | 5.28*** | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

mental illness using perceived depression message quality was significant, $R^2 = .12$, $F(11, 341) = 3.59$, $p < .001$, and perceived argument quality was a significant predictor ($\beta = .22$, $p = .007$) (see Table 4.22).

**H16** was related to how empathy influences attitudes towards individuals with mental illness. More specifically, it predicted that individuals with higher empathy would have less stigmatizing attitudes towards individuals with mental illness than individuals with lower empathy scores. Hierarchical regression explored the relationship between empathy after viewing each message topic and posttest danger, blame, and social distance. This hypothesis was supported. This result suggests that empathy after viewing a message is a key predictor of attitudes about mental illness. The first block of the regression contained demographic variables and second block media-related variables. The third block of the regression added empathy.

The final regression model for predicting mental illness attitudes related to danger from bipolar message empathy was significant, $R^2 = .11$, $F(10, 345) = 4.22$, $p < .001$, and empathy was a significant predictor ($\beta = .20$, $p < .001$) (see Table 4.23).

The final regression model for predicting mental illness attitudes related to placing blame on individuals using bipolar message empathy was significant, $R^2 = .12$, $F(10, 342) = 4.67$, $p < .001$, and empathy was a significant predictor ($\beta = .24$, $p < .001$) (see Table 4.23).

The final regression model for predicting mental illness attitudes related to preferred social distance using depression message empathy was also significant, $R^2 = .13$, $F(10, 347) = 5.02$, $p < .001$, and empathy was a significant predictor ($\beta = .24$, $p < .001$) (see Table 4.23).

Similar results were found for the depression message condition. The final regression model for predicting mental illness attitudes related to placing blame on individuals using depression message empathy was significant, $R^2 = .19$, $F(10, 345) = 7.84$, $p < .001$, and empathy was a significant predictor ($\beta = .34$, $p < .001$) (see Table 4.24).

The final regression model for predicting attitudes related to social distance from individuals with mental illness using bipolar message empathy was significant, $R^2 = .13$, $F(10, 344) = 5.28$, $p < .001$, and empathy was a significant predictor ($\beta = .25$, $p < .001$) (see Table 4.24).

Similar results were found for the depression message condition. The final regression model for predicting attitudes related to social distance from individuals with mental illness using depression message empathy was significant, $R^2 = .15$, $F(10, 347) = 6.25$, $p < .001$, and empathy was a significant predictor ($\beta = .29$, $p < .001$) (see Table 4.24).

**Mental Illness Attitude Change**

A paired-samples $t$-test compared posttest attitudes about danger, blame on individuals, and preferred social distance to pretest measures of the same variables for each participant. On average, participants reported less stigmatized posttest attitudes ($M = 3.28$, $SD = .85$) about the dangerousness of individuals with mental illness than pretest attitudes ($M = 3.14$, $SD = .83$) (see Table 4.25). This difference, .14, BCa 95 % Ci [0.09, 0.18], was significant, $t(391) = 5.45$, $p < .001$, $r = .27$ with a medium-sized effect according to typical sizing conventions (Cohen, 1992).

*Table 4.23 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Empathy After Viewing a Bipolar Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 3.04 | .41 | | 3.49 | .35 | | 2.43 | .48 | |
| | Age | -.07 | .04 | -.10 | .06 | .03 | .10 | -.09 | .05 | -.11* |
| | Gender | .08 | .09 | .05 | .02 | .07 | .02 | .15 | .10 | .08 |
| | Race/Ethnicity | -.14 | .04 | -.18*** | -.08 | .03 | -.12** | -.11 | .04 | -.13** |
| | Education | -.08 | .05 | -.07 | -.06 | .05 | -.06 | -.13 | .06 | -.11* |
| | Income | -.06 | .03 | -.11* | -.05 | .02 | -.10 | -.04 | .03 | -.05 |
| | $R^2\ (\Delta R^2)$ | | .06 (.06)*** | | | .05 (.05)** | | | .05 (.05)** | |
| Step 2 | News media use | .05 | .03 | .08 | .06 | .03 | .12* | .10 | .04 | .14** |
| | Social media use | -.01 | .07 | -.01 | .03 | .06 | .02 | -.06 | .08 | -.04 |
| | $R^2\ (\Delta R^2)$ | | .07 (.01) | | | .06 (.01) | | | .07 (.02)** | |
| Step 3 | Empathy | .21 | .05 | .20*** | .19 | .04 | .24*** | .29 | .06 | .24*** |
| | Final $R^2\ (\Delta R^2)$ | | .11 (.04)*** | | | .12 (.05)*** | | | .13 (.06)*** | |
| $F$ for final model | | | 6.13*** | | | 5.54*** | | | 7.13*** | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p < .05. **p < .01. ***p < .001.

*Table 4.24 Summary of Hierarchical Regression Analyses for Predicting Danger, Blame, and Social Distance from Empathy After Viewing a Depression Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 2.83 | .41 | | 3.12 | .34 | | 2.27 | .48 | |
| | Age | -.06 | .04 | -.08 | .07 | .03 | .11 | -.08 | .04 | -.09 |
| | Gender | .09 | .08 | .05 | .04 | .07 | .02 | .16 | .10 | .08 |
| | Race/Ethnicity | -.14 | .04 | -.18[*] | -.08 | .03 | -.13[*] | -.11 | .04 | -.13[*] |
| | Education | -.07 | .05 | -.07 | -.03 | .04 | -.04 | -.12 | .06 | -.10 |
| | Income | -.05 | .03 | -.08 | -.04 | .02 | -.09 | -.02 | .03 | -.03 |
| | $R^2\ (\Delta R^2)$ | | .06 (.06[***]) | | | .06 (.06[***]) | | | .05 (.05[**]) | |
| Step 2 | News media use | .04 | .03 | .06 | .05 | .03 | .10[*] | .09 | .04 | .13[*] |
| | Social media use | -.03 | .07 | -.02 | .02 | .06 | .01 | -.09 | .08 | -.06 |
| | $R^2\ (\Delta R^2)$ | | .07 (.01) | | | .07 (.01[***]) | | | .07 (.02) | |
| Step 3 | Empathy | .25 | .05 | .29[***] | .27 | .04 | .34[***] | .33 | .06 | .25[***] |
| | Final $R^2\ (\Delta R^2)$ | | .12 (.05[***]) | | | .18 (.11[***]) | | | .15 (.08[***]) | |
| *F* for final model | | | 5.90[***] | | | 9.12[***] | | | 7.54[***] | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

Participants reported more stigmatized posttest attitudes ($M = 4.30$, $SD = .72$) about the amount of individual blame on people with mental illness than pretest attitudes ($M = 4.36$, $SD= .70$) (see Table 4.25). This difference, -0.07, BCa 95 % Ci [-0.12, -0.02], was significant, $t(386) = -2.85$, $p = .005$, $r = 0.14$, with a small-sized effect. Possible reasons for this result are discussed later in this section.

Participants reported less stigmatized posttest attitudes ($M = 3.01$, $SD = 1.01$) regarding preferred social distance from individuals with a mental illness than pretest attitudes ($M = 2.97$, $SD = 1.01$) (see Table 4.25). This difference, 0.04, BCa 95 % Ci [-0.01, 0.09], was not significant, $t(391) = 1.61$, $p = .110$, $r = .08$.

*Table 4.25 Means for Pretest and Posttest Attitude Measures Related to Danger, Blame, and Preferred Social Distance from Individuals with Mental Illness in Experiment One.*

| Attitude | Time of Measurement | | | | | |
|---|---|---|---|---|---|---|
| | Pretest | | | Posttest | | |
| | Mean | SD | N | Mean | SD | N |
| Danger | 3.14* | .83 | 395 | 3.28 | .85 | 393 |
| Blame | 4.36 | .70 | 392 | 4.30 | .72 | 391 |
| Preferred social distance | 2.97 | 1.01 | 395 | 3.01 | 1.01 | 393 |

* Difference between means in same row is significant, $p < .01$.
** Difference between means in same row is significant, $p < .001$.

*Note:* Comparisons between pretest and posttest attitudes were conducted using paired-samples *t*-tests. Significant differences were observed, which indicates that there was a significant change between pretest and posttest measures after message exposure.

*Note:* N's for each measure range from 391 to 395 due to occasional missing data.

*Note:* All scales were operationalized on a 5-point scale, where 1 = more stigmatized attitudes and 5 = less stigmatized attitudes about mental illness.

**Testing the Experimental Model**

Thus far, the results have tested linear relationships based on individual variable predictors. However, the intricate relationship proposed at the beginning of this chapter requires additional testing for mediating effects. Methods outlined by Preacher and Hayes (2004) examined the mediating relationships between the variables measured in this study to predict outcome attitudes and attitude change. The *PROCESS* tool created by Hayes (2012) was installed in SPSS to analyze these data.

Two mediations were tested. First, the effect of empathy on the relationship between elaboration and attitude change was investigated. No significant indirect effects were found for predicting attitude change after exposure to social media messages about mental illness. The second set of mediation tests investigated the effect of perceived argument quality on attitude change after viewing a mental illness message. No significant indirect effects were found for predicting attitude change.

## Discussion

This experiment sought to understand the relationships between perceived message quality, elaboration, and empathy on stigmatized attitudes about mental illness. Overall, several hypotheses were supported.

Messages intended to be high quality were viewed as having better writing and better arguments than messages intended to be low quality. This suggests that individuals evaluate messages based on both the writing quality of message and the quality of arguments it presented. Although both of these evaluations were significantly different in message comparisons, only argument quality seemed to have significant effects on other variables in this study. Empathy, for example, increased when individuals thought the

message had better arguments. Given that empathy positively influenced attitudes about mental illness, this may be evidence for a mediating effect of empathy on the typical relationship between argument quality and attitudes proposed by the ELM. However, mediation tests did not find any significant indirect effects for this relationship.

Another interesting result was the influence of issue involvement on elaboration. This relationship was different for each message topic. Issue involvement had a positive relationship with elaboration when depression messages were viewed, but not for bipolar messages. In addition, predictions regarding the positive relationship between elaboration and attitudes were only supported for depression messages. These results suggest that there might be something about the topic of depression that triggers higher issue involvement and experience or elicits more elaboration. One explanation may be that depression is a more common mental illness and individuals produce more thoughts about message of this topic since they are more familiar with it. Future research should explore more detailed measures for experience with different mental illnesses to better understand this result.

Unfortunately, attitude change was not satisfactorily predicted by the variables in this study. It may be the case that little or no attitude change occurred and instead messages reinforced attitudes held by participants. This would be congruent with ELM predictions that suggest when individuals agree with a persuasive message their attitudes are reinforced (Petty & Cacioppo, 1986). This possibility should be addressed in future studies.

One unexpected result was an overall increase in stigmatized beliefs about personal blame for mental illness after exposure to either mental illness message. This

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result was calculated by comparing mean pretest blame attitudes and mean posttest blame attitudes. This result may suggest that individuals who have negative beliefs before reading the message reinforce these attitudes after seeing the messages. This would be in line with ELM research that states that attitudes may grow stronger as a result of exposure to persuasive messages depending on the individual's agreement with the message (Petty & Cacioppo, 1986). It may be the case that some characteristic of the message, poor writing quality or the nature of the situation, further stigmatized the writer from the perspective of someone who holds negative beliefs about mental illness. This possibility should be explored in future research.

There were several limitations to this experiment. The $R^2$ statistics for most of the regressions performed were very small, and any results from those analyses must be considered with the effect size in mind. This suggests that other variables should be considered when predicting attitudes after viewing a persuasive message about mental illness.

Overall, this experiment provided evidence in support of the general relationships proposed by the ELM in the context of social media messages about mental illness. Interest in mental illness consistently predicted elaboration across message topics. This supports a main assumption of the ELM, which is that increased motivation to process a message will increase thoughts about a message (Petty & Cacioppo, 1986). In addition, argument quality played a role in message exposure outcomes. More specifically, messages with higher perceived argument quality positively influenced attitudes about mental illness. Again, this result is consistent with basic ELM predictions. Higher elaborations led to less stigmatized attitudes about mental illness, which supports the

assumption that increased thinking about a message influences message exposure outcomes as predicted by the ELM (Petty & Cacioppo, 1986).

Elaboration was significantly related to empathy such that participants who reported higher elaboration levels also reported higher empathy for the message creator. This relationship seems logical considering that empathy relies on thinking about how a message creator feels, to be actively thinking about the writer's perspective. Since elaboration can be defined as amount of thinking about a message, this relationship is unsurprising. Empathy positively influenced attitudes about mental illness across several message conditions. This result is consistent with previous research that suggests empathy is a key variable when attempting to change attitudes about stigmatized health conditions (Batson et al., 1997).

This experiment tested basic elements of the ELM and explored the role of empathy in message processing. The main purpose of this dissertation is to understand how social media variables integrate into the relationships found in this experiment. More specifically, relationship with message sharer and credibility of the message creator is thought to influence message elaboration and thereby attitudes about mental illness. This relationship and others related to variables unique to social media are explored in the next chapter.

**CHAPTER FIVE: EXPERIMENT TWO**

The goal of the second experiment was to test how apomediary relationship, message creator characteristics, and endorsement cues trigger psychological processes that lead to positive attitude change. This study was a 2 (apomediary relationship: close apomediary, distant acquaintance) x 2 (message creator: discloses mental illness, does not disclose mental illness) x 2 (endorsement: positive, negative) x 2 (message topic: depression, bipolar disorder) x 2 (quality: high, low) factorial design. Experiment two tested the hypotheses and research questions that address variables associated with social media messages. Of particular interest was the relationship between perceived apomediary relationship, perceived quality of the message, and message creator credibility. More specifically, it was predicted that individuals who reported thinking about a close apomediary as the message sharer would report higher perceived message quality and message creator credibility than individuals who reported thinking about a distant acquaintance while reading the message. In addition, credibility was predicted to be higher when participants thought the message creator had a mental illness than when they did not think the message creator had a mental illness.

This study was meant to recreate conditions under which individuals may be exposed to counter-stigma messages on social media and to investigate to what extent variables that occur in these messages might influence message processing and outcomes. Results of this study will have more practical implications for counter-stigma messages on social media and inform future studies related to the proposed model.

<center>**Measures**</center>

**Pretest Questionnaire**

The pretest questionnaire was identical to that described in experiment one (see

Appendix J for the pretest questionnaire). It measured news media use, social media use,

interest in mental illness, personal experience with mental illness, and pretest attitudes

about mental illness. Included in the pretest was a set of distractor questions about

alcohol addiction, drug addiction, and obesity, which are all stigmatized health

conditions. Answers to interest and attitude measures for these conditions were not

analyzed in any way for this study.

**Media use.** Participants were asked to indicate how frequently they used

particular media, such as newspapers and the internet in general. Answers were presented

as ordinal options ranging from "several times a day" to "never used." As with the first

experiment, *news media use* was calculated by taking the maximum value of all answers

to the news media items. For example, if any of the four news media was answered as

being visited "several times a day," the individual received "several times a day" as a

news media use score. The largest percentage of participants indicated that they visited

news media about once a day ($n = 473$), followed closely by 1-2 days per week ($n = 390$)

and several times a day ($n = 363$). Table 5.1 presents summary statistics for this variable.

**Social media use.** Similarly, social media use was measured by asking

participants how frequently they used *social media*, such as Facebook and Twitter.

Participants indicated frequency of use from an ordinal list of options that ranged from

"several times a day" to "never used." As with the first experiment, *social media use* was

calculated by taking the maximum value of all social media use answers. For example, if

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any individual platform was answered as being visited "once or twice a week," the individual received "once or twice a week" as a social media use score. The largest percentage of participants indicated that they visited social media sites several times a day ($n = 1,058$), followed by about once a day ($n = 287$), and several times a day ($n = 363$) (see Table 5.1).

Table 5.1 *Experiment Two News Media and Social Media Use Descriptives*
*(N = 1,621).*

| Measure | | n | Percentage |
|---|---|---|---|
| News Media Use | Several times a day | 363 | 22.4 |
| | About once a day | 473 | 29.2 |
| | 1-2 days a week | 390 | 24.0 |
| | 3-5 days a week | 110 | 6.8 |
| | Every few weeks or less | 285 | 17.6 |
| | | | |
| Social Media Use | Several times a day | 1,058 | 65.2 |
| | About once a day | 287 | 17.7 |
| | 1-2 days a week | 106 | 6.5 |
| | 3-5 days a week | 56 | 3.5 |
| | Every few weeks or less | 114 | 7.0 |

*Note:* Percentages may not add to 100 due to rounding.

**Personal experience with mental illness.** Participants answered two questions related to personal experience with mental illness. These measures were adapted from the health orientation scale, which asked questions about familiarity with health topics and diagnosis of health conditions, as part of a measure of overall experience with health issues (Dutta, 2007). Participants indicated if they were ***personally diagnosed with a mental illness*** by answering a "yes" or "no" question (see Table 5.2). They also indicated if anyone they personally knew (close friend, close family, and partner/significant other)

was diagnosed with a mental illness by answering "yes" or "not" for each option. A

majority of participants did not personally have a mental illness (72.4%, $n$ = 1,175), and

46.8% ($n$ = 758) knew a close family member that had a mental illness. (see Table 5.2).

*Table 5.2 Experiment Two Descriptives for Personal*
*Diagnosis and Knowing Someone with a Mental*
*Illness (N = 1,622).*

| Person with Diagnosis | | $n$ | Percentage |
|---|---|---|---|
| Self | Yes | 447 | 27.6 |
| | No | 1,175 | 72.4 |
| | | | |
| Close friend | Yes | 468 | 28.9 |
| | No | 1,154 | 71.1 |
| | | | |
| Close family | Yes | 758 | 46.8 |
| | No | 863 | 53.2 |
| | | | |
| Work/school peer | Yes | 306 | 18.9 |
| | No | 1,316 | 81.1 |
| | | | |
| Significant other | Yes | 223 | 13.7 |
| | No | 1,399 | 86.3 |

*Note:* Percentages may not add to 100 due to rounding.

Next, participants indicated ***familiarity with mental illness*** using a single measure

asking "How familiar are you with mental illness?" Participants answered this question

on a scale from "not at all familiar" (1) to "very familiar" (5). Familiarity with mental

illness was measured for each participant in this study ($M$ = 4.16, $SD$ = .84).

**Interest in mental illness.** The same six Likert-type statements used to measure

***interest in mental illness*** from experiment one were used in experiment two. These

statements asked participants to indicate a level of agreement on a five-point scale from

"strongly disagree" (1) to "strongly agree" (5). Example statements include, "I'm not

really interested in mental illness topics," and "I make a point to read and watch news stories about mental illness."

The ***interest in mental illness*** scale was tested using all six items that measured this concept. The mean of the six items was calculated to standardize to the five-point scale used in the original items. Higher values indicated more interest in mental illness, and lower means indicated less interest in mental illness. Interest in mental illness was calculated for each participant in this study ($M = 3.75$, $SD = .85$). Cronbach's alpha for the scale was .90. Deleting items did not increase the alpha for this scale.

**Attitudes about mental illness.** The final section of the pretest measured attitudes and preferred social distance from individuals with mental illness. These measures were identical to those used in the first experiment. The questions were adapted from the Attributional Questionnaire (AQ) (Corrigan et al., 2012) and Social Distance Scale (SDS) (Boyd et al., 2010), which were discussed in detail in Chapter Four. As with the first experiment, these measures served as a pretest level for comparisons with the posttest questions to measure attitude change.

As with the first experiment, two separate scales were created from these measures based on the Attributional Questionnaire (Corrigan et al., 2012): danger and blame. The ***pretest danger*** scale included four items that related to the dangerousness of individuals with mental illness. The scale indicated that $1 =$ more danger and $5 =$ less danger attributed to individuals with mental illness. In other words, lower numbers were more stigmatized attitudes and higher numbers were less stigmatized attitudes. This is consistent with previous research that considers higher perceived dangerousness of individuals a stigmatized belief (Corrigan et al., 2012). Pretest danger was calculated for

each participant in this study using pretest measures ($M = 3.22$, $SD = .85$) (see Table 5.6). Cronbach's alpha for the scale was .84. Deleting items did not increase the alpha for this scale.

The ***pretest blame*** scale included three items that related to placing personal blame on individuals with mental illness. Adding the three items together and dividing the total by three to standardize to the five-point measure created the scale such that 1 = more blame and 5 = less blame attributed to individuals with mental illness. In other words, lower numbers represented more stigmatized attitudes and higher numbers were less stigmatized attitudes. Again, this is consistent with previous research that considers higher perceived individual blame for mental illness a stigmatized belief (Corrigan et al., 2012). Pretest blame was calculated for each participant in this study during both the pretest ($M = 4.41$, $SD = .71$) (see Table 5.9). Cronbach's alpha for the scale was .83. Deleting items did not increase the alpha for this scale.

The social distance scale (SDS) measured willingness to interact with individuals with mental illness. The ***pretest social distance*** scale included six items. Adding the six items together and dividing the total by six standardized the scale to the original five-point measure such that 1 = less willingness and 5 = more willingness to be socially close to individuals with mental illness. In other words, lower numbers represented more stigmatized attitudes and higher numbers were less stigmatized attitudes. This was consistent with previous research that considers higher preferred social distance, or an unwillingness to socially interact with individuals that have a mental illness, a stigmatized belief (Boyd et al., 2010). Pretest social distance was calculated for each participant in this study during the pretest and the posttest ($M = 3.12$, $SD = 1.00$) (see

Table 5.10). Cronbach's alpha for the scale was .91. Deleting items did not increase the alpha for this scale.

**Posttest Questionnaire**

Each message stimulus was followed by a posttest with questions related directly to the message viewed (see Appendix M for the posttest questionnaire). This posttest was largely the same as in experiment one with additional measures for variables that were included in experiment two. The posttest added measures for message creator credibility, a check for perceived mental illness status of the message creator, a check for perceived apomediary relationship, and a check for perceived endorsement. These checks were intended to assess the psychological states predicted to influence attitudes about mental illness. The different message conditions were designed to create variance in these variables, such as closeness of the relationship with an apomediary, but it is unnecessary to check that the manipulations were perceived as intended as long as the researcher observes variance in the variables intended to mediate outcomes (O'Keefe, 2003).

To manipulate *perceived apomediary relationship*, participants received one of two instruction messages prior to viewing the stimulus message (see Appendix N for stimuli messages). The close apomediary condition instructed participants to think about someone they follow on social media whom they trust and are close friends with who usually posts information that they trust. The distant acquaintance condition instructed participants to think about someone they follow on social media whom they don't really trust much and usually posts information that they do not trust. Following the instruction manipulation, both groups were asked to describe the person they were prompted to think about in a text box. This exercise should trigger schema about the close apomediary or

distant acquaintance, which should remain salient during message exposure (Bohner & Wanke, 2002; Jonassen, 1993).

Although activation of apomediary schema was cued by the proposed manipulation, it was important to check which psychological states were accessed when reading the stimulus message. ***Perceived apomediary relationship*** asked participants whom they were thinking about immediately after reader the message. Answer options were: A person you are close friends with and trust on social media (1), a person you don't know well and don't trust on social media (2), no one in particular (3), don't remember (4), and other (5). Correct answers were calculated for each participant and instruction message viewed. For depression messages, 68.2% ($n = 554$) answered the close apomediary instruction manipulation check correctly. For bipolar messages, 64.5% ($n = 523$) answered the close apomediary instruction manipulation check correctly (see Table 5.3).

Another message manipulation was the inclusion of a message endorsement. ***Endorsement cues*** were included in the stimulus to provide commentary by the apomediary that either contains agreement or disagreement with the message. These endorsement messages were pretested as described in the stimuli section of this chapter. The endorsements were designed to be comments from the message apomediary that appeared above the shared message. Agreement endorsements were one of the following statements: "What a wonderful post about mental illness. Thanks for sharing your story! It's truly touching," and "Great points in this post! It's nice to hear from someone who really knows about mental illness." Disagreement endorsements were one of the

following statements: "Who believes this stuff? Just another loser looking for sympathy," and "How stupid."

*Table 5.3 Manipulation Check for Close Apomediary Instructions and Distant Acquaintance Instructions with Bipolar and Depression Messages.*

| | | Manipulation Check | | | |
|---|---|---|---|---|---|
| | | Correct | | Incorrect | |
| Message | Condition | *n* | *%* | *n* | *%* |
| Bipolar message | Close apomediary condition | 523 | 64.5 | 288 | 33.6 |
| | Distant acquaintance condition | 488 | 60.3 | 321 | 39.7 |
| Depression message | Close apomediary condition | 554 | 68.2 | 258 | 31.8 |
| | Distant acquaintance condition | 474 | 58.6 | 335 | 41.4 |

*Note:* Percentages may not add to 100 due to rounding. *N*'s for each message condition range from 809 to 812 due to occasional missing data and participant assignment to conditions.

Although endorsement was manipulated as part of the experiment treatments, it was important to check how participants perceived the endorsements to assess outcomes of these perceptions. Following the apomediary check, a question asked participants how the person who shared the message felt about it. Answer options included: they agreed with the message or liked it (1), they disagreed with the message or disliked it (2), not sure/couldn't tell (3), don't remember (4). Correct answers were calculated for each participant and message viewed. For depression messages, 88.4% ($n = 717$) answered the positive endorsement measure correctly. For bipolar messages, 86.5% ($n = 710$) answered the positive endorsement measure correctly (see Table 5.4).

A final message check measured perceptions of the message creator's discloser or nondisclosure of having a mental illness. The message stimuli were manipulated to use either first-person statements indicating the author had a mental illness or a third-person statement avoiding any mention of having a mental illness (see Appendix N for stimuli messages). For example, the mental illness author condition contained statements such as "I have felt this stigma over and over again," and "When I was first diagnosed with depression my mom told me not to tell anyone what was wrong with me." The non-mental illness author condition contained statements such as "They have felt this stigma over and over again," and "When people are first diagnosed with depression they are often told not to tell anyone what's wrong with them."

*Table 5.4 Manipulation Check for Positive and Negative Endorsements with Bipolar and Depression Messages.*

| | | Manipulation Check | | | |
|---|---|---|---|---|---|
| | | Correct | | Incorrect | |
| Message | Condition | *n* | *%* | *n* | *%* |
| Bipolar message | Positive endorsement | 710 | 86.5 | 111 | 13.5 |
| | Negative endorsement | 548 | 68.6 | 251 | 31.4 |
| Depression message | Positive endorsement | 717 | 88.4 | 94 | 11.6 |
| | Negative endorsement | 464 | 57.3 | 346 | 42.7 |

*Note:* Percentages may not add to 100 due to rounding. *N*'s for each message condition range from 799 to 821 due to occasional missing data and participant assignment to conditions.

The measure for ***creator disclosure*** consisted of one question after the endorsement check. The question asked participants if the person who wrote the original message had a mental illness. Participants answered: "yes" (1), "no" (2), "not sure/couldn't tell" (3), or "don't remember" (4). Correct answers were calculated for each participant and message viewed. It is important to note that "not sure/couldn't tell" was counted as correct for message stimuli that were written in third person. This is because the answer was technically correct given that the message did not indicate that the author either had or did not have a mental illness. For depression messages, 77.7% ($n = 630$) answered the message creator disclosure manipulation check correctly. For bipolar messages, 78.9% ($n = 650$) answered the creator disclosure manipulation check correctly (see Table 5.5).

*Table 5.5 Manipulation Check for Message Creator Mental Illness Disclosure in Bipolar and Depression Messages.*

| Message | Condition | Manipulation Check | | | |
|---|---|---|---|---|---|
| | | Correct | | Incorrect | |
| | | *n* | *%* | *n* | *%* |
| Bipolar message | Discloses mental illness | 650 | 78.9 | 174 | 21.1 |
| | Does not disclose mental illness | 548 | 68.6 | 251 | 31.4 |
| Depression message | Discloses mental illness | 630 | 77.7 | 181 | 22.3 |
| | Does not disclose mental illness | 669 | 82.5 | 142 | 17.5 |

*Note:* Percentages may not add to 100 due to rounding. *N*'s for each message condition range from 798 to 824 due to occasional missing data and participant assignment to conditions.

### Message Evaluations

After answering the manipulation checks, each message was followed by a set of questions related to the stimulus viewed (see Appendix M for the posttest questionnaire). A *thought list* exercise about the message provided a text box and asked participants to type all of the thoughts they had about the message. Answers collected were not analyzed for this dissertation project. Message *elaboration, quality*, and *empathy* were measured as described for experiment one. One additional post-message measure, *message creator credibility*, was included in message evaluation for experiment two.

Six Likert-type items measured *elaboration*. A reliability analysis showed that the same six item scale used in experiment one was not internally consistent in experiment two (Cronbach's alpha = .69). Three items were deleted from the scale, as an increase in Cronbach's alpha would result in leaving them out of the analysis. These items were, "I was not very attentive to the ideas," "I was distracted by other thoughts not related to the message," and "I was reflecting on the implications of the arguments." The new, three-item scale was calculated by taking the mean of the three items to standardize to the original score scale. Message elaboration was calculated after exposure to each stimulus message for each participant. This scale had a Cronbach's alpha of .76. Removing any further items did not increase the alpha for this scale. On average, bipolar message conditions ($M = 3.55$, $SD = .82$) (see Appendix O for means for all bipolar messages) and depression message conditions ($M = 3.61$, $SD = .79$) (see Appendix P for means for all depression messages) evoked moderate levels of elaboration.

As with the first experiment, two scales were created from quality evaluation items to create an argument quality and writing quality measure. The *perceived argument*

*quality* scale included five items that related to the persuasiveness of the message and believability of the scenario. Adding the five items together and dividing the total by five to standardize to the five-point measure created the scale. Argument quality was calculated for each message in this study. Cronbach's alpha for the scale was .88 Deleting items did not increase the alpha for this scale. Overall, bipolar message conditions ($M = 3.58$, $SD = .92$) (see Table 5.8) and depression message conditions ($M = 3.66$, $SD = .90$) (see Table 5.9) were perceived similarly in terms of argument quality.

The *perceived writing quality* scale included four items that related to the quality of writing for the message. These statements included "This message was poor quality," and "This message was not written well." Reverse coding was performed as necessary to keep all items consistent on a scale from 1 = very poor writing quality to 5 = very good writing quality. Adding the four items together and dividing the total by four to standardize to the five-point measure created the scale. Perceived writing quality was calculated for each message in this study. Cronbach's alpha for the scale was .84. Deleting items did not increase the alpha for this scale. Overall, bipolar message conditions ($M = 5.53$, $SD = .94$) (see Table 5.8) and depression message conditions ($M = 3.57$, $SD = .94$) (see Table 5.9) were perceived similarly in terms of writing quality.

The *empathy* measures asked several questions related to how participants felt while reading the message. These items are from the scale included seven items that related to how much empathy participants reported after reading a stimulus message. These items were from the Empathy Response Scale (ERS), which was originally developed to measure empathetic response to HIV/AIDS personal narratives (Campbell & Babrow, 2004). Example statements included "I felt the same feelings expressed by the

message writer," and "I was moved by the writer's experience." Participants chose a response on a five-item scale from "strongly disagree" (1) to "strongly agree" (5). Adding the seven items together and dividing the total by seven to standardize to the five-point measure created the scale with 1 = very low empathy and 5 = very high empathy. Empathy was calculated for each message in this study. Cronbach's alpha for the scale was .90. Deleting items did not increase the alpha for this scale. Overall, bipolar messages ($M = 3.66$, $SD = .75$) (see Table 5.10) and depression messages ($M = 3.73$, $SD = .76$) (see Table 5.11) produced similar levels of empathy.

*Perceived message creator credibility* measured how trustworthy and knowledgeable the writer of the message was about mental illness. These measures were used in previous studies about source credibility (Freeman & Spyridakis, 2004). Nine questions measured responses to statements on a five-point scale between "strongly disagree" (1) and "strongly agree" (5). Statements included, "The author of the post is trustworthy," and "The author of the post is an expert on the topic." This was the only new scale introduced for this chapter and a factor analysis was run for this measure.

A principle-components factor analysis using varimax rotation with oblique extraction identified two components with an eigenvalue more than one for message creator credibility (see Table 5.12). Both components had logical ties among the items that loaded, and no cross-loadings were detected. Two separate scales were created from these measures based on the loading scores: credibility and homophily.

The *credibility* scale included three items that related to the trustworthiness and credibility of the message creator. Each item was a statement that asked participants to indicate to what extent they agreed from "strongly disagree" (1) to "strongly agree" (5).

Statements included, "The message creator is credible," and "The message creator is

believable." This three-item scale explained 79.6% of the variance in the sample, and the

KMO measure for this scale was .74. The scale was created by adding the four items

together and dividing the total by four to restore it to the original five-point measure.

*Table 5.6 Factor Loadings for Factor Analysis with Varimax*
*Rotation of Message Creator Credibility Scales.*

| Item: The author of this post… | Credibility | Homophily |
|---|---|---|
| is trustworthy. | **.79** | .28 |
| has knowledge of the topic. | **.56** [a] | **.63** [a] |
| is credible. | **.78** | .21 |
| is believable. | **.82** | .26 |
| is an expert on the topic. | **.65** [b] | .19 |
| is a lot like me. | .24 | **.88** |
| doesn't think like me.[c] | .31 | **.61** [b] |
| behaves like me. | .21 | **.90** |
| is similar to me. | .22 | **.72** |

[a] Items were removed from both scales due to cross-loading.
[b] Items were removed from column scales to increase reliability.
[c] Items were reverse-coded due to question wording, such that 1 = less
credible and 5 = more credible.

*Note:* Factor loadings > .50 are in boldface. Factors in boldface were part of the final
scale except where noted by superscripts. Cronbach's alpha for both scales was .87.

Credibility was calculated for each message in this study. Any item that needed

reverse coding was calculated prior to creating the scale measure. The scale indicated if

participants perceived the message creator as not very credible (1) or very credible (5).

Cronbach's alpha for the scale was .87. Deleting items did not increase the alpha for this

scale. Overall, bipolar messages ($M = 3.44$, $SD = .84$) (see Table 5.13) and depression

messages (*M* = 3.48, *SD* = .87) (see Table 5.14) produced similar levels of message creator credibility.

The ***homophily*** scale included four items that related to how similar the creator of the message was to the participant. Each item asked participants to indicate to what extent, "strongly disagree" (1) to "strongly agree" (5), they agreed with the statement. Statements included, "The message creator is a lot like me," and "The message creator doesn't think like me." This four-item scale explained 73.8% of the variance in the sample, and the KMO measure for this scale was .80. Adding the four items together and dividing the total by four standardized the scale to the original five-point measure. Homophily was calculated for each participant in this study following exposure to each message. Any item that needed reverse coding was calculated prior to creating the scale measure. The scale indicated if participants perceived that the message creator was very unlike themself (1) or very like themself (5). Cronbach's alpha for the scale was .87. Deleting items did not increase the alpha for this scale. Overall, bipolar messages (*M* = 2.83, *SD* = .86) (see Table 5.13) and depression message conditions (*M* = 2.94, *SD* = .94) (see Table 5.14) produced similar levels of homophily.

**Posttest Attitudes and Attitude Change**

The overall posttest measured attitudes about mental illness and preferred social distance from individuals with mental illness were identical to measures from the first experiment. These measures were identical to those recorded in the pretest and allowed the researcher to evaluate attitude change after exposure to mental illness messages.

The ***posttest danger*** scale included the same four items that related to the dangerousness of individuals with mental illness as the pretest (1 = more danger and 5 =

less danger attributed to individuals with mental illness). Lower numbers indicated more stigmatized attitudes and higher numbers less stigmatized attitudes. Posttest danger was calculated for each participant in this study ($M = 3.25$, $SD = .85$). Paired-samples $t$-tests compared the posttest and pretest measure. On average, participants reported higher posttest danger ($M = 3.25$, $SD = .85$) than pretest danger ($M = 3.22$, $SD = .85$). This difference, .30, 95% BCa CI [.01, .06], was significant, $t(1549) = 2.75$, $p < .01$ , $r = .07$ (see Table 5.15). When interpreted using the original scale measures, this means that posttest danger attitudes were less stigmatized than pretest levels.

The ***posttest blame*** scale included three items that related to placing personal blame on individuals with mental illness (1 = more blame and 5 = less blame attributed to individuals with mental illness). Lower numbers indicated more stigmatized attitudes and higher numbers less stigmatized attitudes. Posttest blame was calculated for each participant in this study ($M = 4.27$, $SD = .72$). Paired-samples $t$-tests compared the posttest and pretest measure. On average, participants reported lower posttest blame ($M = 4.27$, $SD = .72$) than pretest blame ($M = 4.41$, $SD = .71$). This difference, -.14, 95% BCa CI [-.16, -.11], was significant, $t(1549) = -10.72$, $p < .01$ , $r = .26$ (see Table 5.15). When interpreted using the scale measures, this means that posttest blame attitudes were more stigmatized than pretest levels. Possible reasons for this result are discussed in the summary section of this chapter.

The ***posttest social distance*** scale included six items (1 = more social distance and 5 = less social distance preferred from individuals with mental illness). Lower numbers indicated more stigmatized attitudes and higher numbers less stigmatized attitudes. Posttest social distance was calculated for each participant in this study ($M = 3.09$, $SD =$

1.03). Paired-samples *t*-tests compared the posttest and pretest measure. On average, participants reported lower posttest preferred social distance (*M* = 3.09, *SD* = 1.03) than pretest social distance (*M* = 3.12, *SD* = 1.00). This difference, -.03, 95% BCa CI [-.06, -.03], was significant, *t*(1549) = -3.34, *p* < .01 , *r* = .08 (see Table 5.15). When interpreted using the scale measures, this means that posttest preferred social distance attitudes were more stigmatized than pretest levels. This relationship is explored in the results section of this chapter. Possible reasons for this result are discussed in the summary section of this chapter.

*Table 5.7 Means for Pretest and Posttest Attitude Measures Related to Danger, Blame, and Preferred Social Distance from Individuals with Mental Illness.*

| Attitude | Time of Measurement | | | | | |
|---|---|---|---|---|---|---|
| | Pretest | | | Posttest | | |
| | Mean | SD | N | Mean | SD | N |
| Danger | 3.22* | .85 | 1,613 | 3.25* | .85 | 1,610 |
| Blame | 4.41* | .71 | 1,616 | 4.27* | .72 | 1,610 |
| Preferred social distance | 3.12* | 1.00 | 1,609 | 3.09* | 1.03 | 1,600 |

* Difference between means in same row is significant, *p* < .01.
*Note*: Comparisons between pretest and posttest attitudes were conducted using paired-samples *t*-tests. Significant differences were observed, which indicates that there was a significant change between pretest and posttest measures after message exposure. All scales were operationalized on a 5-point scale, where 1 = more stigmatized attitudes and 5 = less stigmatized attitudes about mental illness.

*Note:* N's for each measure range from 1,600 to 1,616 due to occasional missing data.

**Stimuli**

As with the first experiment, the stimuli messages were designed to resemble Facebook posts (see Appendix N for all stimuli messages used in experiment two).

Gender-neutral names and non-human profile photos were chosen to reduce effects related to the gender of the message creator or sharer. ***Message quality*** was manipulated in the same way as experiment one. High-quality messages used correct grammar and spelling while low-quality messages misspelled words, did not properly capitalize, and used informal short hand (ex: b/c instead of because, & in place of and).

Messages also varied by whether the message creator disclosed having a mental illness or not. This manipulation was meant to tap into message creator credibility based on the idea of experiential expertise, which suggests that individuals may trust people who have direct experience with an issue (Baker, 2006). The researcher manipulated ***creator disclosure*** by using first-person voice statements that directly indicate the writer had a mental illness. The nondisclosure of a mental illness condition used third-person voice in the message and did not contain any statements related to the author's direct experience with mental illness (see Appendix N for message stimuli).

Another variable manipulated in this study was the instruction shown to the participant prior to reading the stimuli messages. These instructions were meant to direct participants to think about a certain person they follow on social media as the sharer of the message viewed. Participants received one instruction for each message viewed. ***Perceived apomediary relationship*** was meant to be either a close apomediary who they trust or a distant acquaintance that is someone they do not know well or do not trust much on social media (see Appendix N for message stimuli). Following the instruction manipulation, participants were asked to describe the person they were prompted to think about in a text box. When reading the stimulus message, participants were directed to imagine that the person they wrote about posted the message.

The final variable manipulated in the stimuli messages was ***endorsement cue***. This manipulated was either positive or negative and was meant to signal the message sharer's opinion of the stimulus message. Positive endorsements contained optimistic statements that suggested the message sharer liked the content or agreed with it. Negative endorsements contained pessimistic comments that suggested the message sharer disliked the message or disagreed with the message.

To review, the stimuli were manipulated on four levels. First, instructions before each stimulus were either the close apomediary or the distant acquaintance condition. Next, messages contained either positive or negative endorsements from the message sharer. Then, the messages were edited to be either high-quality or low-quality messages. Finally, the content of the message was changed to either be a first-person narrative that disclosed a mental illness or a third-person statement that did not disclose direct experience with a mental illness. This made the experiment a 2 x 2 x 2 x 2 x 2 factorial design with a total of 32 unique message stimuli.

**Stimuli Pretest**

Prior to conducting the study, a brief pretest evaluated the ease of perceived apomediary instructions and the endorsements for the stimuli messages. MTurk recruited 102 participants to take the pretest (see Appendix I for the MTurk recruitment message). Participants were compensated $.50 for this brief study. First, participants viewed a consent document (see Appendix R for the consent document). Then, participants viewed each of the two instructions intended for use in the second experiment. It is important to note that no random assignment was used in the pretest, and this was a repeated-measures

design. In other words, all participants saw all of the instruction and endorsement variations.

Following the instructions, participants answered five questions regarding *clarity of the instructions* (see Appendix S for posttest measures for the pretest). These items asked participants to what extent, "strongly disagree" (1) to "strongly agree" (5), they agreed with statements about the instructions. Statements included, "The instructions were easy to understand," and "The instructions were confusing." A principle-components factor analysis using varimax rotation with oblique extraction identified one component with an eigenvalue more than one (see Table 5.16).

*Table 5.8 Factor Loadings for Factor Analysis with Varimax*
*Rotation of Instructions Clarity Scale.*

| Item: The instructions… | Clarity |
|---|---|
| were easy to understand. | **.89** |
| were simple. | **.86** |
| were clear. | **.67** |
| did not give me enough information to complete the task.[a] | **.82** |
| were confusing.[a] | **.81** |

[a] Items were reverse-coded due to question wording, such that 1 = easy to understand and 5 = difficult to understand.

*Note:* Factor loadings > .50 are in boldface. All items were included in the final scale for instruction clarity. Cronbach's alpha for the scale was .85

The *clarity of instructions* scale was tested using all five items that measured this concept. This five-item scale explained 66.3% of the variance in the sample. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy tested the suitability of this sample

to produce distinct factors (Yong & Pearce, 2013). Experts suggest that results of this test be above .50 to ensure reliability of factors (Yong & Pearce, 2013). The KMO measure for this scale was .79.

The mean of the five items was calculated to standardize to the five-point scale used in the original items. Clarity of instructions was calculated for each participant in this study and each instruction condition (Close apomediary: $M = 4.30$, $SD = .65$; Distant acquaintance: $M = 4.29$, $SD = .58$). Higher scores indicated that participants thought the instructions were easy to read and understand. Cronbach's alpha for the scale was .85. Deleting items did not increase the alpha for this scale.

The primary concern for evaluating the instructions was to determine if they were easy to follow and clear to participants. More specifically, it was desirable for the instructions to have a rating significantly higher than neutral (3), which would indicate that participants "agreed" (4) or "strongly agreed" (5) that the instructions were clear and easy to understand. One-sample $t$-tests investigated if the instructions were rated different than a neutral rating for ease of understanding and clarity. The close apomediary instruction condition, $t(101) = 20.14$, $p < .001$, $r = .89$, and the distant acquaintance condition, $t(101) = 22.32$, $p < .001$, $r = .91$, were both rated significantly higher than neutral for ease of understanding and clarity. No changes were made to these instructions for experiment two.

***Endorsement cues*** were tested to evaluate which cues would be best to use with experiment two. The pretest study included five negative endorsements and five positive endorsements created by the researcher. Participants were not randomly assigned to conditions and viewed all possible messages. However, the order of presentation for the

messages was randomized. Participants viewed an introduction to the messages

explaining that they accompanied a post about mental illness, which was not included in

this pretest. Participants were asked to evaluate how they think the person who wrote the

comment felt about the message. Five Likert-type items measured to participant's

agreement with statements on a five-point scale from "strongly disagree" (1) to "strongly

agree" (5). Statements included, "This comment agrees with the post it refers to," and

"This comment is negative." A principle-components factor analysis using varimax

rotation with oblique extraction identified one component with an eigenvalue more than

one (see Table 5.9).

*Table 5.9 Factor Loadings for Factor Analysis with Varimax*
*Rotation of Endorsement Evaluation Scale.*

| Item: | Evaluation |
|---|---|
| This comment agrees with the post it refers to. | **.75** |
| This comment is favorable. | **.87** |
| The commenter liked the post. | **.89** |
| The comment is easy to understand. | **.81** |
| The comment is negative.[a] | **.73** |

[a] Items were reverse-coded due to question wording, such that 1 = a
more negative comment and 5 = a more positive comment.

*Note:* Factor loadings > .50 are in boldface. All items were included in
the final scale for endorsement evaluation clarity. Cronbach's alpha for
the scale was .86.

The ***endorsement evaluation*** scale was tested using all five items that measured

this concept. This five-item scale explained 65.4% of the variance in the sample. The

KMO measure for this scale was .75. The mean of the five items was calculated to

standardize to the five-point scale used in the original items. Endorsement evaluation was

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calculated for each endorsement cue in this study. Higher scores indicated that

participants thought the endorsement agreed with the message and lower scores that the

endorsement disagreed with the message. Cronbach's alpha for the scale was .86.

Deleting items did not increase the alpha for this scale.

The primary concern for evaluating the endorsements was to determine if they

conveyed either agreement and liking of the message or disagreement and disliking of the

message. More specifically, it was desirable for the positive endorsements to have a

rating significantly higher than neutral (3), and the negative endorsements to have a

rating significantly lower than neutral.

One-sample $t$-tests investigated if the positive endorsements were rated higher

than a neutral rating for agreement with the message commented about (see Table 5.10).

All five positive endorsements were significantly higher than neutral for agreement with

the original message. Therefore, the two top-scoring endorsements were chosen as

positive endorsement manipulations for experiment two.

The first positive endorsement ($M = 4.41$, $SD = .72$) was, "What a wonderful post

about mental illness. Thanks for sharing your story! It's truly touching," $t(101) =$

19.86, $p < .001$, $r = .89$. The second positive endorsement ($M = 4.43$, $SD = .68$) was,

"Great points in this post! It's nice to hear from someone who really knows about mental

illness," $t(101) = 21.07$, $p < .001$, $r = .90$.

One-sample $t$-tests investigated if the negative endorsements were rated lower

than a neutral rating for agreement with the message commented about. All five negative

endorsements were significantly lower than neutral for agreement with the original

message (see Table 5.11). Therefore, the two lowest-scoring endorsements were

*Table 5.10 Stimuli Pretest Evaluations of Positive Endorsements*
*(N = 102).*

| Endorsement | Mean | SD |
|---|---|---|
| This really explains what it's like to have a mental illness. Read it and share! | 4.34* | .67 |
| So true! | 4.21 | .74 |
| What a wonderful post about mental illness. Thanks for sharing your story! It's truly touching. | 4.41* | .72 |
| Nice reminder to put yourself in someone else's shoes. | 4.14 | .72 |
| Great points in this post! It's nice to hear from someone who really knows about mental illness. | 4.43* | .68 |

* Difference between 3 and mean is significant, $p < .01$.

*Note*: One-sample *t*-tests compared these means with a test statistic of 3 to compare to a neutral rating.

*Note*: Endorsement evaluation means were operationalized on a 5-point scale, where 1 = strongly disagrees with the message and 5 = strongly agrees with the message.

chosen as negative endorsement manipulations for experiment two. The first negative endorsement ($M = 2.10$, $SD = .57$) was, "Who believes this stuff? Just another loser looking for sympathy," $t(101) = -16.10$, $p < .001$, $r = .85$. The second negative endorsement ($M = 2.13$, $SD = .63$) was, "How stupid," $t(101) = -14.02$, $p < .001$, $r = .81$.

*Table 5.11 Stimuli Pretest Evaluations of Negative Endorsements*
*(N = 102).*

| Endorsement | Mean | SD |
|---|---|---|
| Who believes this stuff? Just another loser looking for sympathy. | 2.10[*] | .57 |
| How stupid. | 2.13[*] | .63 |
| So everyone with a mental illness gets a pass because this one person is fine? I don't think so. | 2.23[*] | .62 |
| How can anyone take this idiot seriously? | 2.15[*] | .56 |
| What a terrible argument. I shouldn't be cautious of people with a mental illness just because you're a good person? Really?! | 2.20[*] | .65 |

[*] Difference between 3 and mean is significant, $p < .001$.

*Note*: One-sample *t*-tests compared these means with a test statistic of 3 to compare to a neutral rating.

*Note:* The endorsement evaluation means were operationalized on a 5-point scale, where 1 = strongly disagrees with the message and 5 = strongly agrees with the message.

## Experiment Procedures

The same procedures and pretest from experiment one were used in this study, and several variables were added to the stimuli manipulation and posttest measures. First, a recruitment message was posted to MTurk describing the purpose of the study (see Appendix I for the recruitment message). Once participants agreed to participate, they followed a link to a Qualtrics survey that contained the experiment and returned to MTurk after completing the project to input a code for compensation. This experiment contained six attention checks, and only participants who passed at least five were included in the study. MTurk settings were used to prevent anyone who had participated

in the pilot study or experiment one from participating in this study. Participants first viewed a consent letter and those who chose to continue proceeded with the study.

Participants completed the pretest for the study, which included the same distractor variables from the first experiment (see Appendix J for pretest). This pretest included initial measures on the three dependent variables: attitudes related to dangerousness of individuals with mental illness, placing personal blame on individuals with mental illness, and desired social distance from people with mental illness.

Then, participants viewed a randomly assigned instruction condition, close apomediary or distant acquaintance, prior to viewing the first stimulus message (see Appendix N for instruction conditions). These instructions asked participants to write a few sentences about a particular person they follow on social media as described in the previous section.

Then, participants viewed a randomly assigned message that they were told was from the person they wrote about (see Appendix N for message stimuli). Following each message, participants answered questions directly related to the message viewed (see Appendix M for posttest measures). These questions included manipulation checks for the message, evaluations of the message, elaborations on the message, and opinions about the message creator. After viewing the first message and answering posttest questions about the message, participants viewed another randomly assigned instruction and message pair. Each participant viewed a depression message and a bipolar message in a random order.

Participants continued to the posttest questionnaire that addressed the outcome variables of interest in this study (see Appendix M for posttest measures). Participants

answered questions about attitudes towards individuals with a mental illness, preferred social distance, and a set of demographic questions. Finally, participants viewed a debriefing message that included information about resources for mental illness and the stigmatized health conditions mentioned in the distractor measures (see Appendix L for the debrief message).

## Participants

Amazon's Mechanical Turk (MTurk) service recruited 1,650 participants for this study. Criteria for participating in this study included living in the U.S., being 18 years old or more, having native English fluency, and being a user of social media sites, which was defined as visiting a social media site at least once a week. The sample reduced to 1,622 after removing individuals who did not pass five out of six attention checks or failed to complete measures for outcome variables.

Participants received $1.00 as compensation for work on this study. This amount was decreased from experiment one for several reasons. First, funding for these studies would not cover paying the participants needed with $3.00 as with the first experiment. To accommodate available research funds, the payment to each participant was reduced to $1.00. Second, time was not a primary concern for data collection, and it was not vital to collect responses as quickly as possible, which was the case for the first experiment. Response collection took two more days than the first experiment, but that was not a concerning factor for the research. Recent research suggested that compensation amounts did not affect the quality of data collected from participants (Litman et al., 2015). Therefore, a lower compensation should not have affected the quality of the data collected from participants in the second experiment.

## Results

### Participant Demographics

The sample was 61.5% female ($n = 998$) and 37.2% male ($n = 604$). A further 1.2% ($n = 20$) identified as other and wrote in gender identification, such as transgendered. A majority of the participants identified as white (78.5%, $n = 1,256$). Participants indicated the year they were born, which was translated to age in years during data analysis. Participants ranged in age between 18 and 87. The mean age of participants was 37.40 ($SD = 12.43$) and median age was 34.

Participants with an associate or bachelor degree were the largest education demographic at 46.3% ($n = 748$), followed by individuals with some college at 27.6% ($n = 445$). Individuals who reported a household income of $20,001-$40,000 comprised the highest percentage of the sample at 27.0% ($n = 437$), followed by $40,001-$60,000 (20.8%, $n = 337$). A full summary of education, gender, race/ethnicity, and income statistics is presented in Table 5.12.

### Random Assignment

Chi-square analyses were used to test for random assignment of participants based on demographic variables to stimuli messages. Each message varied by message topic (depression or bipolar), message quality (high or low), message creator disclosure (discloses mental illness or does not disclose mental illness), apomediary relationship (close apomediary or distant acquaintance), and message endorsement (positive or negative). The combined message manipulations resulted in 16 unique depression messages and 16 unique bipolar messages. Since participants viewed one depression

message and one bipolar message, random assignment was tested within each set of 16 messages with the same message topic.

Chi-square tests revealed that there was no significant difference in the assignment to depression message by gender, race/ethnicity, and annual household income. This result suggested that participants were indeed randomly assigned based on these variables. There was no significant difference in distribution of education categories within depression messages, but there was a significant difference within bipolar messages, $\chi^2 (45, N = 1,615) = 69.93$, $p = .01$, $V = .12$. Only two bipolar message conditions significantly varied in terms of participant distribution by education level.

*Table 5.12 Experiment Two Demographic Descriptions.*

|  |  | *n* | Percentage |
|---|---|---|---|
| Gender | Female | 998 | 61.5 |
|  | Male | 604 | 37.7 |
|  |  |  |  |
| Race | White | 1,256 | 78.5 |
|  | Black or African American | 128 | 8.0 |
|  | Hispanic or Latino | 93 | 5.8 |
|  | Asian or Asian American | 87 | 5.4 |
|  | Native American | 37 | 2.3 |
|  |  |  |  |
| Education | High school or less | 137 | 8.5 |
|  | Some college | 445 | 27.6 |
|  | Associate or bachelor degree | 748 | 46.3 |
|  | Master or doctorate | 285 | 17.6 |
|  |  |  |  |
| Income | Less than $20,000 | 266 | 16.4 |
|  | $20,001 to $40,000 | 437 | 27.0 |
|  | $40,001 to $60,000 | 337 | 20.8 |
|  | $60,001 to $80,000 | 225 | 13.9 |
|  | $80,001 to 100,000 | 146 | 9.0 |
|  | More than $100,000 | 210 | 13.0 |

*Note:* *N*'s range from 1,601 to 1,615 due to occasional missing data. Percentages for each demographic variable may not add to 100 due to rounding.

The high-quality bipolar message with close apomediary instructions, a positive endorsement, and a message creator that disclosed a mental illness had more participants with a high school education or less and fewer with an associate or bachelor degree than expected. The high-quality bipolar message with close apomediary instructions, a positive endorsement, and a message creator that disclosed a mental illness had more participants with an associate or bachelor degree and fewer with some college than expected.

Chi-square tests revealed no significant difference in the assignment to depression or bipolar message by mental illness experience, such as having a mental illness or knowing someone who has a mental illness. This result suggested that participants were indeed randomly assigned based on these variables. Chi-square analysis reported that there was no significant difference in the assignment to depression or bipolar message by social media use, news media use, or internet use. Again, this result suggested that participants were indeed randomly assigned to stimuli messages based on these variables.

Several continuous variables were tested to evaluate the distribution between messages. One-way analysis of variance (ANOVA) revealed that there was no difference in the assignment to messages by pretest measures of age, interest in mental illness, familiarity with mental illness, pretest danger, and pretest blame. There was no significant difference in distribution of pretest social distance means within depression messages, but there was a significant difference within bipolar messages, $F(15, 1593) = 1.72$, $p = .04$, $\eta^2 = .02$.

**Order Effects**

Stimulus message order was randomized to control for order effects. However, it is still important to test that the order of message exposure did not significantly influence the outcome variables for this study. Each participant saw one depression message and one bipolar message. Each message topic had 16 unique message conditions. There were a total of 256 possible message pairs. Given that each pair could vary by order (bipolar message followed by depression message or depression message followed by bipolar message), a total of 512 unique message orders were tested. Independent-samples *t*-tests compared each message pair to determine if message order influenced posttest danger, blame, and social distance measures. Thirty (11.7%) of the 256 possible message pairs had significant order effects. Given this result, further analyses were limited to comparing messages within disease topic.

**Hypotheses Testing**

Several hypotheses and research questions from the first experiment were retested. These retested hypotheses included analyses of the relationship between issue involvement and elaboration, elaboration and posttest attitudes, perceived message quality and posttest attitudes, and empathy and posttest attitudes. These repeated hypothesis tests are presented first in this section. Next, new hypotheses and research questions regarding perceived apomediary relationship, endorsements, and message creator credibility are reviewed. All research questions and hypotheses are organized by outcome variables in this section.

*Message Elaboration*

**H1** predicted that individuals with higher issue involvement (interest in mental illness, familiarity with mental illness, personal experience with mental illness) would have higher elaboration after message exposure than individuals with lower issue involvement. Hierarchical regression was used to test this relationship. The first block in the regression contained demographic variables (age, gender, race, education, income). The second block contained media-related variables (news media use, social media use, internet use). The third block contained experience with mental illness variables (personal diagnosis, diagnosis of a close friend or family member). The fourth block contained familiarity with mental illness and interest in mental illness. This hypothesis was partially supported for both bipolar messages and depression messages.

The final multiple regression model for bipolar disorder message elaboration was significant, $R^2 = .05$, $F(12, 1509) = 6.00$, $p < .001$. Personally having a mental illness ($\beta = -.07$, $p = .02$) and interest in mental illness ($\beta = .16$, $p < .001$) were the only issue involvement variables that significantly predicted bipolar message elaboration in the final model (see Table 5.13). These results are consistent with those found in the first experiment.

The final multiple regression model for depression message elaboration was significant, $R^2 = .04$, $F(12, 1518) = 5.26$, $p < .001$. Personally having a mental illness ($\beta = -.07$, $p = .01$) and interest in mental illness ($\beta = .13$, $p < .001$) were the only issue involvement variables that significantly predicted depression message elaboration in the final model (see Table 5.14). These results are consistent with those found in the first experiment, as well as the model for bipolar message elaboration.

*Table 5.13 Summary of Hierarchical Regression Analysis for Variables Predicting Elaboration After Viewing a Bipolar Message (N = 1,522).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.92 | .12 | | 4.09 | .14 | | 4.01 | .15 | | 3.35 | .19 | |
| Race/Ethnicity | -.09 | .05 | -.05 | -0.08 | .05 | -.04 | -.08 | .05 | -.04 | -.07 | .05 | -.04 |
| Age | .01 | .01 | .04 | .01 | .01 | .02 | .01 | .01 | .02 | .01 | .01 | .03 |
| Income | -.02 | .01 | -.05 | -.03 | .01 | -.05* | -.03 | .01 | -.05* | -.02 | .01 | -.04 |
| Education | -.06 | .03 | -.06* | -.06 | .03 | -.06 | -.06 | .03 | -.06* | -.07 | .03 | -.07** |
| Gender | -.09 | .04 | -.06* | -.08 | .04 | -.05 | -.09 | .04 | -.05 | -.11 | .04 | -.07* |
| Social media use | | | | .00 | .02 | .00 | .01 | .02 | .01 | .01 | .02 | .02 |
| News media use | | | | -.06 | .02 | -.09*** | -.05 | .02 | -.09*** | -.04 | .02 | -.07** |
| Internet use | | | | .02 | .03 | .02 | .02 | .03 | .02 | .05 | .03 | .05 |
| Close other MI | | | | | | | -.01 | .05 | -.01 | .01 | .05 | .01 |
| Personal MI | | | | | | | .08 | .05 | .05 | -.12 | .05 | -.07* |
| Familiarity with MI | | | | | | | | | | .02 | .03 | .02 |
| Interest in MI | | | | | | | | | | .16 | .03 | .16*** |
| $R^2$ | | .01 | | | .02 | | | .02 | | | .05 | |
| $\Delta R^2$ | | .01 | | | .01 | | | .00 | | | .02 | |
| $F$ for $\Delta R^2$ | | 4.18*** | | | 4.16** | | | 1.53 | | | 17.32*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Close other MI (mental illness) and personal MI were represented by a dichotomous variable with 1 = yes and 0 = no.

*p* < .05. **p* < .01. ***p* < .001.

Table 5.14 Summary of Hierarchical Regression Analysis for Variables Predicting Elaboration After Viewing a Depression Message (N = 1,531).

| Variable | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.89 | .11 | | 4.08 | .13 | | 4.01 | .14 | | 3.54 | .18 | |
| Race/Ethnicity | -.14 | .05 | -.07*** | -.13 | .05 | -.07** | -.13 | .05 | -.07** | -.12 | .05 | -.06** |
| Age | .00 | .00 | .06* | .00 | .00 | .05 | .00 | .00 | .05 | .00 | .00 | .06* |
| Income | -.04 | .01 | -.08*** | -.04 | .01 | -.09*** | -.04 | .01 | -.09*** | -.04 | .01 | -.08*** |
| Education | -.02 | .02 | -.02 | -.02 | .02 | -.02 | -.02 | .02 | -.02 | -.03 | .02 | -.03 |
| Gender | -.08 | .04 | -.05* | -.09 | .04 | -.05* | -.08 | .04 | -.05 | -.10 | .04 | -.06* |
| Social media use | | | | -.02 | .02 | -.04 | -.02 | .02 | -.03 | -.01 | .02 | -.02 |
| News media use | | | | -.04 | .02 | -.07** | -.04 | .02 | -.07** | -.03 | .02 | -.05* |
| Internet use | | | | .01 | .02 | .01 | .01 | .02 | .01 | .03 | .02 | .03 |
| Close other MI | | | | | | | .09 | .04 | .05* | .03 | .05 | .02 |
| Personal MI | | | | | | | -.05 | .05 | -.03 | -.13 | .05 | -.07** |
| Familiarity w/ MI | | | | | | | | | | .01 | .03 | .01 |
| Interest in MI | | | | | | | | | | .12 | .03 | .13*** |
| $R^2$ | | .02 | | | .02 | | | .03 | | | .04 | |
| $\Delta R^2$ | | .02* | | | .01** | | | .00 | | | .01* | |
| $F$ for $\Delta R^2$ | | 5.63*** | | | 3.14* | | | 2.49 | | | 9.91*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Close other MI (mental illness) and personal MI were represented by dichotomous variable with 1 = yes and 0 = no.

*p < .05. **p < .01. ***p < .001.

Given the low $R^2$ for both of these regressions, several other models were tested that did have specific hypotheses outlined in Chapter Two of this dissertation project. Only one model increased the $R^2$ for predicting elaboration. This model used the same first three blocks of the previous regression. The fourth block contained all issue involvement variables, perceived argument quality and perceived writing quality of the message viewed.

The final multiple regression model for bipolar disorder message elaboration was significant, $R^2 = .10$, $F(14, 1450) = 11.65$, $p < .001$. Interest in mental illness ($\beta = .13$, $p < .001$) and perceived argument quality ($\beta = .28$, $p < .001$) were the only variables that significantly predicted bipolar message elaboration in the final model (see Table 5.15).

The final multiple regression model for depression message elaboration was significant, $R^2 = .11$, $F(14, 1478) = 13.22$, $p < .001$. Personally having a mental illness ($\beta = -.07$, $p = .019$), interest in mental illness ($\beta = .08$, $p = .013$), perceived argument quality ($\beta = .34$, $p < .001$), and perceived writing quality ($\beta = -.10$, $p = .012$) all significantly predicted depression message elaboration (see Table 5.16).

**RQ2** asked how apomediary relationship influences motivation to process a social media message about mental illness. To answer this question, the previous regression was re run with perceived apomediary relationship added as the last block. Higher motivation to process the message should increase elaboration (Petty & Cacioppo, 1986), and an increase in the ability to predict elaboration if apomediary relationship is added to this regression model would imply how this variable influences motivation to process a message.

*Table 5.15 Summary of Hierarchical Revised Regression Analysis for Variables Predicting Elaboration After Viewing a Bipolar Message (N = 756).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| (Constant) | 3.94 | .17 | | 4.12 | .20 | | 3.33 | .29 | | 2.69 | .31 | |
| Race/Ethnicity | -.14 | .08 | -.07 | -.13 | .08 | -.06 | -.13 | .08 | -.06 | -.08 | .07 | -.04 |
| Age | .00 | .00 | .05 | .00 | .00 | .02 | .00 | .00 | .04 | .00 | .00 | .01 |
| Income | -.03 | .02 | -.05 | -.03 | .02 | -.06 | -.02 | .02 | -.04 | -.02 | .02 | -.05 |
| Education | -.09 | .04 | -.09$^*$ | -.09 | .04 | -.09$^*$ | -.08 | .04 | -.08$^*$ | -.06 | .04 | -.06 |
| Gender | -.04 | .06 | -.03 | -.04 | .06 | -.02 | -.07 | .06 | -.04 | -.08 | .06 | -.05 |
| Social media use | | | | .00 | .03 | .01 | .02 | .03 | .03 | .03 | .03 | .04 |
| News media use | | | | -.06 | .02 | -.10$^{**}$ | -.04 | .02 | -.07 | -.03 | .02 | -.05 |
| Internet use | | | | .02 | .04 | .02 | .04 | .04 | .04 | .03 | .04 | .03 |
| Close other MI | | | | | | | .06 | .07 | .03 | .09 | .07 | .05 |
| Personal MI | | | | | | | -.07 | .08 | -.04 | -.06 | .08 | -.03 |
| Familiarity with MI | | | | | | | .02 | .05 | .02 | .03 | .05 | .03 |
| Interest in MI | | | | | | | .15 | .04 | .16$^{***}$ | .11 | .04 | .11$^{**}$ |
| Perceived arg qual | | | | | | | | | | .17 | .05 | .19$^{***}$ |
| Perc. write qual | | | | | | | | | | .03 | .05 | .04 |
| Perceived endorse. | | | | | | | | | | .02 | .09 | .01 |
| $R^2$ | | .02 | | | .03 | | | .05 | | | .10 | |
| $\Delta R^2$ | | .02$^*$ | | | .01 | | | .03$^{***}$ | | | .05$^{***}$ | |
| $F$ for $\Delta R^2$ | | 2.97$^*$ | | | 2.21 | | | 5.03$^{***}$ | | | 19.44$^{***}$ | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Close other MI (mental illness) and personal MI were represented by a dichotomous variable with 1 = yes and 0 = no. Perceived endorsement was represented by a dichotomous variable with 1 = positive and 0 = negative.

$^*p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 5.16 *Summary of Hierarchical Revised Regression Analysis for Variables Predicting Elaboration After Viewing a Depression Message (N = 743).*

| Variable | Model 1 B | SE B | $\beta$ | Model 2 B | SE B | $\beta$ | Model 3 B | SE B | $\beta$ | Model 4 B | SE B | $\beta$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (Constant) | 3.74 | .17 | | 3.95 | .20 | | 3.36 | .27 | | 2.72 | .27 | |
| Race/Ethnicity | -.13 | .07 | -.07 | -.12 | .07 | -.06 | -.11 | .07 | -.06 | -.08 | .07 | -.04 |
| Age | .01 | .00 | .12*** | .01 | .00* | .09 | .01 | .00 | .09* | .00 | .00 | .05 |
| Income | -.05 | .02 | -.10** | -.06 | .02*** | -.12 | -.05 | .02 | -.11*** | -.05 | .02 | -.11*** |
| Education | -.04 | .04 | -.04 | -.04 | .04 | -.04 | -.05 | .04 | -.05 | -.04 | .03 | -.04 |
| Gender | -.02 | .06 | -.01 | -.02 | .06 | -.01 | -.04 | .06 | -.03 | -.08 | .06 | -.05 |
| Social media use | | | | -.04 | .03 | -.05 | -.03 | .03 | -.04 | -.01 | .03 | -.01 |
| News media use | | | | -.06 | .02*** | -.11 | -.05 | .02 | -.09* | -.05 | .02 | -.08* |
| Internet use | | | | .06 | .03 | .06 | .08 | .03 | .08* | .07 | .03 | .08* |
| Close other MI | | | | | | | .05 | .07 | .03 | .08 | .06 | .04 |
| Personal MI | | | | | | | -.20 | .07** | -.11** | -.17 | .07 | -.10* |
| Familiarity with MI | | | | | | | .03 | .04 | .03 | .02 | .04 | .02 |
| Interest in MI | | | | | | | .12 | .04** | .13** | .07 | .04 | .07 |
| Perceived arg qual | | | | | | | | | | .33 | .05 | .38*** |
| Perc. write qual | | | | | | | | | | -.09 | .05 | -.11* |
| Perceived endorse. | | | | | | | | | | .09 | .09 | .04 |
| $R^2$ | | .03 | | | .05 | | | .07 | | | .15 | |
| $\Delta R^2$ | | .03*** | | | .02** | | | .02** | | | .08*** | |
| $F$ for $\Delta R^2$ | | 4.56*** | | | 3.94** | | | 4.15** | | | 24.02*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Close other MI (mental illness) and personal MI were represented by a dichotomous variable with 1 = yes and 0 = no. Perceived endorsement was represented by a dichotomous variable with 1 = positive and 0 = negative.

*p < .05. **p < .01. ***p < .001.

The first block of the hierarchical had demographic variables, the second block media use variables, the third block issue involvement variables, the fourth block contained all issue involvement variables, and the fifth block contained perceived argument quality and perceived writing quality of the message viewed. The sixth and final block contained perceived apomediary relationship.

The $R^2$ change between the final multiple regression model for bipolar disorder message elaboration was not significantly changed from the model that did not include perceived apomediary relationship. This same result was found for depression messages. This suggests that apomediary relationship did not influence motivation to process the message, as evidenced by not changing elaboration in a meaningful way.

### *Perceived Message Quality*

**H6** predicted that individuals who perceived that the message sharer was a close apomediary would have more positive message evaluations. Not all of the participants passed the manipulation check for apomediary relationship based on stimulus message viewed. However, this dissertation is more concerned with how psychological states (ex: perceived relationship with a message sharer) influence message processing and outcomes. Therefore, this hypothesis was tested using whom participants reported thinking about instead of what was directed in the message stimuli. Perceived argument quality and perceived writing quality were analyzed within each message topic. Independent-samples *t*-tests compared perceived message sharer relationship with message evaluations for each message topic. This hypothesis was not significantly supported, but given the exploratory nature of this study it is still interesting to report the relationships.

The effect for perceived message sharer relationship, $t(800) = 1.74$, $p = .083$, $r =$ .06, approached significance with bipolar messages shared by a close apomediary ($M = 3.62$, $SD = .91$) receiving higher perceived argument quality than messages shared by a distant acquaintance ($M = 3.50$, $SD = .96$). Similar results were found for the depression messages. The effect for perceived message sharer relationship, $t(804) = 1.73$, $p = .084$, r = .06, approached significance with depression messages shared by a close apomediary ($M = 3.66$, $SD = .88$) receiving higher perceived argument quality than messages shared by a distant acquaintance ($M = 3.54$, $SD = .91$).

### *Perceived Message Creator Credibility*

**H7** predicted that individuals who perceived that the message sharer was a close apomediary would perceive the message creator as more credible. Independent-samples $t$-tests compared perceived message sharer relationship with perceived message creator credibility for each message topic. This hypothesis was supported, suggesting that perceived message sharer relationship influences the reader's evaluation of the original message creator.

The effect for perceived message sharer relationship was significant, $t(804) = 2.10$, $p = .036$ $r = .07$, with bipolar messages shared by a close apomediary ($M = 3.50$, $SD = .82$) receiving higher perceived message creator credibility than messages shared by a distant acquaintance ($M = 3.36$, $SD = .90$) (see Table 5.17). Similar results were found for the depression messages. The effect for perceived message sharer relationship was significant, $t(806) = 2.97$, $p = .003$, r = .10, with depression messages shared by a close apomediary ($M = 3.53$, $SD = .87$) receiving higher perceived creator credibility than messages shared by a distant acquaintance ($M = 3.33$, $SD = .89$) (see Table 5.17).

**H8** predicted that individuals who perceived that the message creator had a mental illness would perceive the message creator as more credible. Independent-samples *t*-tests compared perceived message creator mental illness disclosure with perceived message creator credibility for each message topic. This hypothesis was supported, suggesting that a message creator's mental illness status influences credibility evaluation of the message creator for mental illness messages.

The effect for perceived message creator mental illness status was significant, $t(817) = 2.64$, $p = .008$, $r = .09$, with bipolar messages written by someone who has a mental illness ($M = 3.50$, $SD = .82$) receiving higher message creator credibility than messages created by someone who does not have a mental illness ($M = 3.32$, $SD = .80$) (see Table 5.17). Similar results were found for the depression messages. The effect for message creator mental illness status was significant, $t(800) = 2.98$, $p = .003$, $r = .10$, with depression messages written by someone who has a mental illness ($M = 3.54$, $SD = .87$) receiving higher message creator credibility than messages written by someone who does not have a mental illness ($M = 3.32$, $SD = .98$) (see Table 5.17).

No specific hypotheses or research questions were posed regarding message creator mental illness status and homophily with participants. However, this relationship was tested using independent-samples *t*-tests. Levene's test for equality of variances was significant for both message topics and the statistics reported for these tests use the results reported without assuming equal variances.

There was a significant effect for participants who reported having a mental illness, $t(735) = 5.58$, $p < .001$, $r = .20$, with bipolar messages written by someone who has a mental illness ($M = 3.03$, $SD = .92$) receiving higher message creator homophily

than messages created by someone who does not have a mental illness ($M = 2.75$, $SD =$ .83). Similar results were found for the depression messages. The effect for participants who reported having a mental illness was significant, $t(727) = 7.81$, $p < .001$, $r = .28$, with depression messages written by someone who has a mental illness ($M = 3.25$, $SD = 1.00$) receiving higher message creator homophily than messages written by someone who does not have a mental illness ($M = 2.82$, $SD = .89$). These results seem logical given the idea that homophily measured similarity with a source.

Table 5.17 *Perceived Message Creator Credibility Means for Messages by Perceived Apomediary Relationship and Perceived Message Creator Mental Illness Status.*

| | | Message Topic | | | |
| | | Bipolar Disorder | | Depression | |
| | | Mean | *SD* | Mean | *SD* |
| Perceived Apomediary Relationship | Close apomediary | 3.50* | .82 | 3.53** | .87 |
| | Distant acquaintance | 3.36* | .90 | 3.33** | .89 |
| Perceived Message Creator MI | Has a mental illness | 3.50** | .82 | 3.54** | .87 |
| | Does not have a mental illness | 3.32** | .80 | 3.22** | .98 |

*Note*: Comparisons between perceived message creator credibility means was compared for perceived apomediary relationship and perceived message creator mental illness status within message topics using independent-samples *t*-tests.

*$p < .05$,  **$p < .01$

**H13** predicted that individuals who perceived that a message had a positive endorsement would perceive the message creator as more credible. Independent-samples *t*-tests compared perceived message endorsement with perceived message creator

credibility for each message topic. This hypothesis was not supported, suggesting that perceived message endorsement did not influence message creator credibility evaluations.

### *Mental Illness Attitudes*

**H2** was related to how message elaboration influenced attitudes about mental illness. More specifically, it predicted that individuals with higher elaboration would have less stigmatized attitudes about mental illness. Hierarchical regression explored the relationship between elaboration of each message topic and posttest danger, blame, and social distance.

The first block of the regression contained the same demographic variables previously listed. The second block of the regression contained the same media-related variables previously described. The third block of the regression added elaboration. In general, this hypothesis was not supported. Results suggest that this prediction is supported only when predicting attitudes related to personal blame from bipolar message elaboration, as described below. All other regression models did not show a significant relationship between elaboration and posttest danger or posttest social distance attitudes.

The final regression model for predicting mental illness attitudes placing blame on individuals using bipolar message elaboration was significant, $R^2 = .08$, $F(9, 1521) = 15.16$, $p < .001$. Elaboration ($\beta = .05$, $p = .05$) was a significant predictor of posttest attitudes about individual blame for mental illness (see Table 5.18). More specifically, an increase in elaboration led to more positive posttest attitudes regarding blame. On the original score scale, higher posttest attitude scores are less stigmatized beliefs about individuals with mental illness. A similar result was found in the first experiment.

The model predicting mental illness attitudes placing blame on individuals using depression message elaboration was significant, $R^2 = .08$, $F(9, 1529) = 15.08$, $p < .001$. Elaboration was not a significant predictor, but the relationship approached significance ($\beta = .05$, $p = .07$) (see Table 5.19). This result contradicts the same analysis from experiment one.

**H4** predicted that participants who reported higher perceived message quality would have less stigmatized attitudes about mental illness. Hierarchical regression explored the relationship between perceived message quality of each message topic and posttest danger, blame, and social distance. The first block of the regression contained the same demographic variables previously described. The second block of the regression contained the same media-related variables previously described. The third block of the regression added perceived argument quality and perceived writing quality. This hypothesis was generally supported. This suggests that perceived argument quality influenced attitudes about mental illness, which is similar to results reported in the first experiment.

The final regression model for predicting mental illness attitudes related to danger from perceived bipolar message quality was significant, $R^2 = .05$, $F(10, 1498) = 8.21$, $p < .001$, and perceived argument quality was a significant predictor ($\beta = .10$, $p = .022$) (see Table 5.20). More specifically, when perceived argument quality is higher individuals have less stigmatized beliefs about the dangerousness of individuals with mental illness. A similar result was found in experiment one.

*Table 5.18 Summary of Hierarchical Regression Analysis for Predicting Blame From Elaboration After Viewing a Bipolar Message (N = 1,534).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.86 | .10 | | 4.14 | .12 | | 3.97 | .15 | |
| Race/Ethnicity | .13 | .05 | .07** | .12 | .04 | .07** | .12 | .04 | .07** |
| Age | .00 | .00 | -.01 | .00 | .00 | .01 | .00 | .00 | .01 |
| Income | -.02 | .01 | -.04 | -.01 | .01 | -.02 | -.01 | .01 | -.02 |
| Education | .03 | .02 | .03 | .02 | .02 | .02 | .02 | .02 | .02 |
| Gender | .19 | .04 | .13*** | .17 | .04 | .11*** | .17 | .04 | .11*** |
| Social media use | | | | -.02 | .02 | -.03 | -.02 | .02 | -.03 |
| News media use | | | | .01 | .01 | .02 | .01 | .01 | .03 |
| Internet use | | | | -.20 | .02 | -.23*** | -.20 | .02 | -.23*** |
| Elaboration | | | | | | | .04 | .02 | .05* |
| | | | | | | | | | |
| $R^2$ | | .02 | | | .08 | | | .08 | |
| $\Delta R^2$ | | .02*** | | | .06*** | | | .01* | |
| $F$ for $\Delta R^2$ | | 7.24*** | | | 31.41*** | | | 3.59* | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p < .05. **p < .01. ***p < .001.

Table 5.19 *Summary of Hierarchical Regression Analysis for Predicting Blame From Elaboration After Viewing a Depression Message (N = 1,539).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | $B$ | *SE B* | $\beta$ | $B$ | *SE B* | $\beta$ | $B$ | *SE B* | $\beta$ |
| (Constant) | 3.86 | .10 | | 4.14 | .12 | | 3.97 | .15 | |
| Race/Ethnicity | .13 | .05 | .07*** | .12 | .04 | .07** | .13 | .04 | .07*** |
| Age | .00 | .00 | -.01 | .00 | .00 | .01 | .00 | .00 | .00 |
| Income | -.02 | .01 | -.04 | -.01 | .01 | -.02 | -.01 | .01 | -.02 |
| Education | .02 | .02 | .03 | .01 | .02 | .02 | .01 | .02 | .02 |
| Gender | .19 | .04 | .13 | .17 | .04 | .11*** | .17 | .04 | .12*** |
| Social media use | | | | -.02 | .02 | -.03 | -.02 | .02 | -.03 |
| News media use | | | | .01 | .01 | .02 | .01 | .01 | .03 |
| Internet use | | | | -.20 | .02 | -.23*** | -.20 | .02 | -.23 |
| Elaboration | | | | | | | .04 | .02 | .04 |
| | | | | | | | | | |
| $R^2$ | | .02 | | | .08 | | | .08 | |
| $\Delta R^2$ | | .02*** | | | .06*** | | | .01 | |
| $F$ for $\Delta R^2$ | | 7.50*** | | | 30.87*** | | | 3.25 | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

The final regression model for predicting mental illness attitudes related to placing blame on individuals from perceived bipolar message quality was significant, $R^2 = .09$, $F(10, 1501) = 14.09$, $p < .001$. Perceived argument quality ($\beta = .07$, $p = .073$) was not a significant predictor, but it approached significance (see Table 5.20).

The final regression model for predicting attitudes related to social distance from individuals with mental illness using perceived bipolar message quality was significant, $R^2 = .07$, $F(10, 1488) = 11.19$, $p < .001$, and perceived argument quality was a significant predictor ($\beta = .10$, $p = .013$) (see Table 5.20). This suggests that individuals who report higher perceived argument quality are more likely to have less stigmatized beliefs about preferred social distance from people with mental illness. A similar result was found in experiment one.

The final regression model for predicting mental illness attitudes related to danger from perceived depression message quality was significant, $R^2 = .06$, $F(10, 1497) = 8.96$, $p < .001$. Perceived argument quality was a significant predictor ($\beta = .12$, $p = .003$) (see Table 5.21). As with the bipolar message regression, when perceived argument quality is higher, individuals have less stigmatized beliefs about the dangerousness of individuals with mental illness. The final regression model for predicting mental illness attitudes related to placing blame on individuals from perceived depression message quality was significant, $R^2 = .09$, $F(10, 1497) = 15.52$, $p < .001$. Perceived argument quality was a significant predictor ($\beta = .13$, $p = .001$). This result suggests that when individuals perceive that the argument in a message is high quality, they are more likely to have less stigmatized beliefs about personal blame for mental illness (see Table 5.21).

*Table 5.20 Summary of Hierarchical Regression Analysis for Predicting Danger, Blame, and Social Distance from Perceived Message Quality of Bipolar Messages.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| Step 1 | (constant) | 3.21 | .17 | | 3.84 | .14 | | 2.94 | .21 | |
| | Race/Ethnicity | .17 | .05 | .08*** | .12 | .04 | .07** | .24 | .07 | .09*** |
| | Age | -.01 | .00 | -.15*** | .00 | .00 | .00 | -.01 | .00 | -.16*** |
| | Income | -.06 | .01 | -.11*** | -.01 | .01 | -.03 | -.08 | .02 | -.13*** |
| | Education | .02 | .03 | .02 | .03 | .02 | .04 | .03 | .03 | .02 |
| | Gender | .05 | .05 | .03 | .16 | .04 | .11*** | .16 | .05 | .07*** |
| | $R^2$ ($\Delta R^2$) | .04 (.04***) | | | .02 (.02***) | | | .05 (.05***) | | |
| Step 2 | Social media use | -.01 | .02 | -.01 | -.01 | .02 | -.02 | -.02 | .02 | -.03 |
| | News media use | .02 | .02 | .03 | .02 | .01 | .03 | .04 | .02 | .05* |
| | Internet use | -.06 | .03 | -.06* | -.19 | .02 | -.23*** | -.06 | .03 | -.05* |
| | $R^2$ ($\Delta R^2$) | .04 (.00) | | | .08 (.05***) | | | .06 (.01**) | | |
| Step 3 | Writing quality | .01 | .04 | .01 | .02 | .03 | .02 | -.01 | .05 | -.01 |
| | Argument quality | .09 | .04 | .09* | .06 | .03 | .07[a] | .11 | .05 | .10** |
| | *Final* $R^2$ ($\Delta R^2$) | .05 (.01***) | | | .09 (.01***) | | | .07 (.01***) | | |
| *F* for final model | | 8.21*** | | | 14.09*** | | | 11.19*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

*Table 5.21 Summary of Hierarchical Regression Analysis for Predicting Danger, Blame, and Social Distance from Perceived Message Quality of Depression Messages.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 3.22 | .17 | | 3.74 | .14 | | 2.93 | .20 | |
| | Race/Ethnicity | .18 | .05 | .08*** | .14 | .04 | .08*** | .26 | .06 | .10*** |
| | Age | -.01 | .00 | -.16*** | .00 | .00 | .00 | -.01 | .00 | -.18*** |
| | Income | -.05 | .01 | -.10*** | -.01 | .01 | -.02 | -.08 | .02 | -.12*** |
| | Education | .00 | .03 | .00 | .02 | .02 | .02 | .01 | .03 | .01 |
| | Gender | .07 | .05 | .04 | .16 | .04 | .11*** | .17 | .05 | .08*** |
| | $R^2\ (\Delta R^2)$ | | .04 (.04)*** | | | .03 (.03) | | | .06 (.06) | |
| Step 2 | Social media use | .00 | .02 | .00 | -.01 | .02 | -.01 | .00 | .02 | .00 |
| | News media use | .00 | .02 | .00 | .02 | .01 | .04 | .03 | .02 | .04 |
| | Internet use | -.06 | .03 | -.06** | -.20 | .02 | -.23*** | -.07 | .03 | -.05* |
| | $R^2\ (\Delta R^2)$ | | .04 (.00) | | | .08 (.06) | | | .07 (.01) | |
| Step 3 | Writing quality | .00 | .04 | -.01 | -.01 | .03 | -.01 | -.07 | .04 | -.07 |
| | Argument quality | .11 | .04 | .12** | .10 | .03 | .13*** | .19 | .05 | .17*** |
| | Final $R^2\ (\Delta R^2)$ | | .06 (.02)*** | | | .09 (.01) | | | .08 (.01) | |
| $F$ for final model | | | 8.96*** | | | 15.52*** | | | 12.97*** | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ***p* < .001.

Similar results were found for the depression message condition. The final regression model for predicting attitudes related to social distance from individuals with mental illness using perceived depression message quality was significant, $R^2 = .08$, $F(10, 1489) = 12.97$, $p < .001$. Perceived argument quality was a significant predictor ($\beta = .17$, $p < .001$) such that higher perceived argument quality predicted less stigmatized attitudes (see Table 5.21).

**H15** predicted that individuals with higher empathy would have less stigmatized attitudes about individuals with mental illness than individuals with lower empathy. Hierarchical regression explored the relationship between empathy after viewing each message topic and posttest danger, blame, and social distance. The first block of the regression contained demographic variables and the second block media-related variables. The third block of the regression added empathy. This hypothesis was supported, which suggests that empathy is a significant predictor of mental illness attitudes after viewing a social media message.

Attitudes after viewing a social media message about bipolar disorder were significantly influenced by empathy. The final regression model for predicting mental illness attitudes related to danger from bipolar message empathy was significant, $R^2 = .11$, $F(9, 1523) = 20.00$, $p < .001$, and empathy was a significant predictor ($\beta = .26$, $p < .001$) (see Table 5.22). A similar result was reported in experiment one.

The final regression model for predicting mental illness attitudes related to placing blame on individuals using bipolar message empathy was significant, $R^2 = .14$, $F(9, 1523) = 26.69$, $p < .001$, and empathy was a significant predictor ($\beta = .25$, $p < .001$) (see Table 5.22). A similar result was reported in experiment one.

The final regression model for predicting attitudes related to social distance from individuals with mental illness using bipolar message empathy was significant, $R^2 = .14$, $F(9, 1512) = 27.20$, $p < .001$, and empathy was a significant predictor ($\beta = .28, p < .001$) (see Table 5.22).

The final regression model for predicting mental illness attitudes related to danger using depression message empathy was also significant, $R^2 = .10$, $F(9, 1518) = 5.02$, $p < .001$), and empathy was a significant predictor ($\beta = .25, p < .001$) (see Table 5.23). Similar results were found in experiment one.

The final regression model for predicting mental illness attitudes related to placing blame on individuals using depression message empathy was significant, $R^2 = .16$, $F(9, 1518) = 32.42$, $p < .001$, and empathy was a significant predictor ($\beta = .30$, $p < .001$) (see Table 5.23). A similar result was reported in experiment one.

Similar results were found for the depression message condition. The final regression model for predicting attitudes related to social distance from individuals with mental illness using depression message empathy was significant, $R^2 = .16$, $F(9, 1508) = 31.33$, $p < .001$, and empathy was a significant predictor ($\beta = .31, p < .001$) (see Table 5.23).

**H12** was related to how perceived message endorsement influenced attitudes about mental illness. More specifically, it predicted that individuals who perceived positive endorsement from a message sharer would have less stigmatized attitudes about mental illness. Independent-samples *t*-tests compared perceived message endorsement with posttest attitudes for each message topic. This hypothesis was partially supported.

*Table 5.22 Summary of Hierarchical Regression Analysis for Predicting Danger, Blame, and Social Distance from Empathy After Viewing a Bipolar Message.*

| | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variable | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 2.50 | .17 | | 3.22 | .14 | | 1.89 | .21 | |
| | Race/Ethnicity | .19 | .05 | .09*** | .13 | .04 | .08*** | .26 | .06 | .10*** |
| | Age | -.01 | .00 | -.16*** | .00 | .00 | -.01 | -.02 | .00 | -.18*** |
| | Income | -.06 | .01 | -.11*** | -.01 | .01 | -.02 | -.08 | .02 | -.12*** |
| | Education | .02 | .03 | .02 | .03 | .02 | .04 | .03 | .03 | .02 |
| | Gender | .03 | .04 | .02 | .12 | .04 | .08*** | .10 | .05 | .05* |
| | $R^2 (\Delta R^2)$ | .04 (.04***) | | | .02 (.02***) | | | .06 (.06***) | | |
| Step 2 | Social media use | .01 | .02 | .01 | -.01 | .01 | -.02 | -.01 | .02 | -.01 |
| | News media use | .02 | .02 | .04 | .03 | .01 | .06* | .05 | .02 | .07** |
| | Internet use | -.04 | .02 | -.04 | -.18 | .02 | -.21*** | -.03 | .03 | -.02 |
| | $R^2 (\Delta R^2)$ | .04 (.00) | | | .08 (.05***) | | | .06 (.00) | | |
| Step 3 | Empathy | .29 | .03 | .26*** | .24 | .02 | .25*** | .39 | .03 | .28*** |
| | Final $R^2 (\Delta R^2)$ | .11 (.06***) | | | .14 (.06***) | | | .14 (.08***) | | |
| *F* for final model | | 20.01*** | | | 26.69*** | | | 27.20*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

*p* < .05. **p* < .01. ****p* < .001.

*Table 5.23 Summary of Hierarchical Regression Analysis for Predicting Danger, Blame, and Social Distance from Empathy After Viewing a Depression Message.*

| Variable | | Predicting Danger | | | Predicting Blame | | | Predicting Social Distance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| Step 1 | (constant) | 2.55 | .17 | | 3.11 | .14 | | 1.76 | .21 | |
| | Race/Ethnicity | .17 | .05 | .08*** | .14 | .04 | .08*** | .26 | .06 | .10*** |
| | Age | -.01 | .00 | -.16*** | .00 | .00 | -.01 | -.02 | .00 | -.18*** |
| | Income | -.05 | .01 | -.10*** | .00 | .01 | -.01 | -.07 | .02 | -.11*** |
| | Education | .02 | .03 | .02 | .02 | .02 | .02 | .01 | .03 | .01 |
| | Gender | .02 | .04 | .01 | .11 | .04 | .07*** | .10 | .05 | .05* |
| | $R^2\ (\Delta R^2)$ | .04 (.04***) | | | .02 (.02***) | | | .06 (.06***) | | |
| Step 2 | Social media use | .02 | .02 | .02 | .00 | .01 | .00 | .01 | .02 | .01 |
| | News media use | .01 | .02 | .02 | .02 | .01 | .04 | .04 | .02 | .05* |
| | Internet use | -.04 | .02 | -.04 | -.17 | .02 | -.21*** | -.02 | .03 | -.02 |
| | $R^2\ (\Delta R^2)$ | .04 (.00) | | | .08 (.06***) | | | .06 (.00***) | | |
| Step 3 | Empathy | .28 | .03 | .25*** | .28 | .02 | .30*** | .43 | .03 | .31*** |
| | $R^2\ (\Delta R^2)$ | .10 (.06***) | | | .16 (.08***) | | | .16 (.09***) | | |
| $F$ for final model | | 19.55*** | | | 32.42*** | | | 31.33*** | | |

*Note:* Coefficients represent the final model from the regressions. Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female.

$*p < .05.\ **p < .01.\ ***p < .001.$

More specifically, it was only supported for attitudes placing personal blame on individuals with mental illness. In other words, participants who perceived the message had positive endorsements had less stigmatized beliefs about personal blame for mental illness than participants who did not perceive a positive endorsement for the message. The effect for perceived message endorsement on posttest danger attitudes and preferred social distance was not significant for either depression or bipolar messages

*Table 5.24 Posttest Means of Danger, Blame, and Social Distance by Perceived Message Endorsement After Viewing a Bipolar Message.*

| Attitude | Perceived Endorsement | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Positive | | | Negative | | |
| | Mean | *SD* | *n* | Mean | *SD* | *n* |
| Danger | 3.26 | .86 | 705 | 3.13 | .72 | 109 |
| Blame | 4.33* | .69 | 706 | 4.04* | .86 | 111 |
| Preferred social distance | 4.33 | .69 | 706 | 4.04 | .86 | 111 |

* Difference between means in same row is significant, $p < .001$.

*Note:* Comparisons between perceived endorsements were conducted using independent-samples t-tests. Significant differences were observed, which indicates that there was a significant difference between posttest attitudes when a positive or negative endorsement as perceived.

*Note:* All scales were operationalized on a 5-point scale, where 1 = more stigmatized attitudes and 5 = less stigmatized attitudes about mental illness.

The bipolar message analysis violated the assumption of equal variances, and the statistics reported are from the results that do not assume equal variances. The effect for endorsement was significant, $t(133) = 3.39$, $p < .001$, $r = .28$, with bipolar messages that had a positive endorsement ($M = 4.33$, $SD = .69$) receiving lower posttest personal blame than messages without a positive endorsement ($M = 4.04$, $SD = .86$) (see Table 5.24). The

effect for endorsement was also significant, $t(803) = 5.29$, $p < .001$, $r = .18$, with

depression messages that had a positive endorsement ($M = 4.31$, $SD = .71$) receiving

lower posttest personal blame than messages without a positive endorsement ($M = 3.89$,

$SD = .77$) (see Table 5.25).

*Table 5.25 Posttest Means of Danger, Blame, and Social Distance by Perceived Message Endorsement After Viewing a Depression Message.*

| Attitude | Perceived Endorsement | | | | | |
|---|---|---|---|---|---|---|
| | Positive | | | Negative | | |
| | Mean | SD | n | Mean | SD | n |
| Danger | 3.25 | .86 | 712 | 3.10 | .79 | 93 |
| Blame | 4.31** | .71 | 712 | 3.89** | .77 | 93 |
| Preferred social distance | 3.10* | 1.03 | 708 | 2.87* | 1.03 | 92 |

\* Difference between means in same row is significant, $p < .05$.
\*\* Difference between means in same row is significant, $p < .001$.

*Note:* Comparisons between perceived endorsements were conducted using independent-samples *t*-tests. Significant differences were observed, which indicates that there was a significant difference between posttest attitudes when a positive or negative endorsement as perceived.

*Note:* All scales were operationalized on a 5-point scale, where 1 = more stigmatized attitudes and 5 = less stigmatized attitudes about mental illness.

### *Empathy*

**RQ5** asked how perceived message quality influenced empathetic responses to

stimuli messages. A hierarchical regression analyzed the relationship between perceived

writing quality, perceived argument quality, and empathy. A separate regression was run

for each message topic. Empathy was the outcome variable examined. The first block

contained demographic variables, the second block contained media use variables, and

the last block contained perceived writing quality and perceived argument quality.

Results from these analyses were very similar to those reported in experiment one.

The final model was a significant predictor of empathy after viewing a bipolar disorder message, $R^2 = .53$, $F(10, 1495) = 168.18$, $p < .001$ (see Table 5.26). Perceived argument quality ($\beta = .66$, $p < .001$) and perceived writing quality were significant predictors ($\beta = .07$, $p = .01$) such that as quality increased so did empathy.

The final model was also a significant predictor of empathy after viewing a depression message, $R^2 = .54$, $F(10, 1490) = 172.29$, $p < .001$ (see Table 5.27). Perceived argument quality was a significant predictor ($\beta = .68$, $p < .001$), but writing quality was not a significant predictor ($\beta = .04$, $p = .13$).

### Tests for Moderation and Mediation

**H9** predicted that mental illness status of message creators would have greater influence on mental illness attitudes under low elaboration conditions than high elaboration conditions. Moderation analyses were conducted using the *PROCESS* package for SPSS developed by Hayes (2012). Both posttest attitudes and changes in attitudes were tested. This hypothesis was not supported. There was no significant moderation effect for mental illness status when predicting attitudes from elaboration levels.

**H10** predicted that endorsements from an apomediary would have greater influence on mental illness attitudes under low-elaboration conditions than high-elaboration conditions. Moderation analyses were conducted using the *PROCESS* package for SPSS developed by Hayes (2012). Both posttest attitudes and changes in

attitudes were tested. This hypothesis was not supported. There was no significant moderation effect for endorsement when predicting attitudes from elaboration levels.

  **H11** predicted that endorsements would have greater influence on mental illness attitudes when issue involvement was low than when issue involvement was high. For this test, issue involvement was narrowed to interest in mental illness. Moderation analyses were conducted using the *PROCESS* package for SPSS developed by Hayes (2012). Both posttest attitudes and changes in attitudes were tested. This hypothesis was not supported. There were no significant moderation effects for endorsement when predicting attitudes from elaboration levels. The overall model proposed by this dissertation predicted that empathy would mediate the effects of elaboration when predicting changes in attitudes about mental illness. Mediation analyses were conducted using the *PROCESS* package for SPSS developed by Hayes (2012). Changes in attitudes were tested using elaboration and empathy after viewing each message topic. No significant mediations were found.

*Table 5.26 Summary of Hierarchical Regression Analysis for Predicting Empathy From Message Quality After Viewing a Bipolar Message (N = 1,506).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.38 | .11 | | 3.70 | .13 | | 1.50 | .11 | |
| Race/Ethnicity | -.07 | .05 | -.04 | -.07 | .05 | -.04 | .02 | .03 | .01 |
| Age | .01 | .00 | .10*** | .00 | .00 | .08*** | .00 | .00 | -.02 |
| Income | -.01 | .01 | -.03 | -.02 | .01 | -.03 | -.01 | .01 | -.03 |
| Education | -.05 | .02 | -.06* | -.06 | .02 | -.07** | .01 | .02 | .01 |
| Gender | .19 | .04 | .12*** | .18 | .04 | .12*** | .12 | .03 | .08*** |
| Social media use | | | | -.03 | .02 | -.04 | .01 | .01 | .01 |
| News media use | | | | -.05 | .01 | -.09*** | -.01 | .01 | -.02 |
| Internet use | | | | -.06 | .02 | -.07** | -.06 | .02 | -.07*** |
| Writing quality | | | | | | | .06 | .02 | .07** |
| Argument quality | | | | | | | .53 | .02 | .66*** |
| | | | | | | | | | |
| $R^2$ | | .03 | | | .05 | | | .53 | |
| $\Delta R^2$ | | .03*** | | | .02*** | | | .48*** | |
| $F$ for $\Delta R^2$ | | 9.45*** | | | 8.32*** | | | 767.17*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Quality was operationalized on a 5-point scale, where 1 = very low quality and 5 = very high quality.

*p* < .05. ***p* < .01. ****p* < .001.

Table 5.27 *Summary of Hierarchical Regression Analysis for Predicting Empathy From Message Quality After Viewing a Depression Message (N = 1,501).*

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ |
| (Constant) | 3.41 | .11 | | 3.72 | .13 | | 1.51 | .11 | |
| Race/Ethnicity | -.09 | .05 | -.05 | -.09 | .05 | -.05 | -.01 | .03 | -.01 |
| Age | .00 | .00 | .06* | .00 | .00 | .07** | .00 | .00 | -.01 |
| Income | -.02 | .01 | -.04 | -.02 | .01 | -.04 | -.01 | .01 | -.02 |
| Education | -.01 | .02 | -.02 | -.02 | .02 | -.02 | .01 | .02 | .01 |
| Gender | .21 | .04 | .13*** | .18 | .04 | .12*** | .11 | .03 | .07*** |
| Social media use | | | | -.06 | .02 | -.10*** | -.01 | .01 | -.01 |
| News media use | | | | -.02 | .01 | -.03 | .00 | .01 | -.01 |
| Internet use | | | | -.08 | .02 | -.09*** | -.08 | .02 | -.09*** |
| Writing quality | | | | | | | .03 | .02 | .04 |
| Argument quality | | | | | | | .57 | .02 | .68*** |
| | | | | | | | | | |
| $R^2$ | | .03 | | | .05 | | | .54 | |
| $\Delta R^2$ | | .03*** | | | .02*** | | | .50*** | |
| $F$ for final $\Delta R^2$ | | 7.92*** | | | 10.99*** | | | 786.14*** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Quality was operationalized on a 5-point scale, where 1 = very low quality and 5 = very high quality.

*p < .05. **p < .01. ***p < .001.

**Examining Attitude Change**

Hierarchical regression tested which variables influenced attitude change based on a synthesis of results presented in this chapter. Several variables significantly predicted posttest attitudes related to personal blame for mental illness. Elaboration, empathy, and perceived endorsement from a close apomediary significantly predicted posttest attitudes. Argument quality was not a significant predictor, but it approached significance. Although it was not directly tested, perceived mental illness status of the message creator directly influence credibility, which is known to influence perceptions of persuasive messages. Given the results presented thus far and general predictions related to message processing, an overall model for predicting attitude change was tested.

Hierarchical regression was used to test a general model for predicting blame attitude change. Only blame attitude change was tested because other attitudes were not consistently predicted from previous analyses. The first block in the regression contained demographic variables (age, gender, race, education, income). The second block contained media-related variables (news media use, social media use). The third block contained evaluations of the social media message (argument quality, perceived apomediary relationship, perceived endorsement, perceived message creator mental illness, and perceived message creator credibility). The fourth block contained message elaboration and empathy.

The final multiple regression model for attitude change related to personal blame for mental illness after viewing a bipolar disorder message was significant, $R^2 = .18$, $F(14, 173) = 2.65$, $p = .002$ (see Table 5.28). Empathy ($\beta = .39$, $p = .001$) was the largest standardized coefficient when predicting blame attitude change in the final model. This

result suggested that when empathy increased, attitudes become less stigmatized regarding blame for mental illness.

Perceived apomediary relationship ($\beta = .21$, $p = .005$) significantly predicted attitude change, such that when participants thought a close apomediary shared the message they reported less stigmatized beliefs. Message creator credibility ($\beta = -.22$, $p = .04$) influenced attitude change in an unexpected way. The beta coefficient is negative, which suggests that when participants reported higher message creator credibility they also had more stigmatized beliefs about blame for mental illness. Interestingly, more frequent social media use ($\beta = .17$, $p = .03$) also lessened stigmatized attitudes about mental illness.

Table 5.28 Summary of Hierarchical Regression Analysis for Variables Predicting Blame Attitude Change After Viewing a Bipolar Message (N = 188).

| Variable | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE\ B$ | $\beta$ | $B$ | $SE(B)$ | $\beta$ |
| (Constant) | .00 | .20 | | .07 | .22 | | -.04 | .28 | | -.36 | .30 | |
| Race/Ethnicity | .18 | .09 | .15* | .20 | .09* | .17 | .20 | .09 | .17* | .18 | .09 | .15* |
| Age | .00 | .00 | -.10 | -.01 | .00* | -.17 | -.01 | .00 | -.16 | -.01 | .00 | -.13 |
| Income | -.01 | .02 | -.03 | -.02 | .02 | -.07 | -.03 | .02 | -.09 | -.02 | .02 | -.07 |
| Education | .00 | .04 | -.01 | .00 | .04 | .01 | -.01 | .04 | -.02 | -.01 | .04 | -.03 |
| Gender | -.05 | .07 | -.05 | .00 | .07 | .00 | .02 | .07 | .02 | .01 | .07 | .01 |
| Social media use | | | | .05 | .03 | .12 | .07 | .03 | .16* | .06 | .03 | .16* |
| News media use | | | | -.06 | .03* | -.17 | -.05 | .03 | -.15* | -.04 | .03 | -.13 |
| Internet use | | | | .03 | .04 | .05 | .00 | .04 | .01 | .02 | .04 | .04 |
| Argument quality | | | | | | | .03 | .05 | .06 | -.07 | .06 | -.14 |
| Apomediary | | | | | | | .24 | .09 | .22** | .23 | .08 | .21** |
| Endorsement | | | | | | | .04 | .10 | .03 | .02 | .10 | .01 |
| Message creator MI | | | | | | | -.08 | .09 | -.07 | -.13 | .09 | -.11 |
| Creator credibility | | | | | | | -.04 | .06 | -.07 | -.13 | .06 | -.22* |
| Elaboration | | | | | | | | | | .03 | .04 | .05 |
| Empathy | | | | | | | | | | .25 | .07 | .39*** |
| $R^2$ | | .03 | | | .07 | | | .12 | | | .18 | |
| $\Delta R^2$ | | .03 | | | .04 | | | .05 | | | .06** | |
| F for $\Delta R^2$ | | 1.09 | | | 2.54 | | | 1.83 | | | 6.56** | |

*Note:* Race was represented as a dichotomous variable with 1 = white and 0 = all other races/ethnicities. Gender was represented by a dichotomous variable with 0 = male and 1 = female. Close other MI (mental illness) and personal MI were represented by a dichotomous variable with 1 = yes and 0 = no. Perceived endorsement was represented by a dichotomous variable with 1 = positive and 0 = negative.

*p < .05. **p < .01. ***p < .001

**Discussion**

The purpose of experiment two was to examine how social media variables, such as apomediary relationship and endorsement, influences attitudes about mental illness using the foundations of the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986). Several results were replicated from experiment one. As in experiment one, higher interest in mental illness and higher perceived message quality led to more elaboration about the message. Higher elaborations led to less stigmatized beliefs about personal blame for mental illness, as would be expected when applying the ELM. In addition, higher argument quality led to less stigmatized danger attitudes and preferred social distance for both message topics. Higher argument quality produced less stigmatized beliefs about personal blame for mental illness in bipolar message, but it was not a significant predictor in depression messages. Perceived argument quality also influenced blame attitudes, but only for the depression message. As in experiment one, higher empathy levels led to less stigmatized attitudes about mental illness.

Perceived apomediary relationship did not significantly influence perceived argument quality, but this association approached significance. Given that this study was exploratory and that apomediary manipulations could be improved, it is suggested that future research further explore this relationship. Perceived apomediary relationship did significantly influence message creator credibility. More specifically, when participants reported thinking about a close apomediary as the message sharer they also reported higher message creator credibility. Eysenbach (2008) suggested that trust in an apomediary would positively influence trust in the message shared. It follows that this same transference of trust might hold true for trust in an apomediary and perceived

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credibility of the original message creator. Message creators who disclosed having a mental illness were rated as more credible than message creators who did not disclose a mental illness. This result may be evidence of the power of experiential knowledge when individuals process messages about mental illness.

Results for the relationship between endorsement and message evaluation were mixed. The only significant result indicated that both bipolar and depression messages that had a positive endorsement decreased posttest personal blame. It may be the case that endorsements serve as a cue to how an individual should respond to the message. For example, one of the positive endorsements mentioned that the message was "touching." This language may prime individuals to engage in perspective-taking while reading the message. The negative endorsements attacked the *message creator* in some way. The positive endorsements praised the message *arguments*. The target of an endorsement might influence message evaluation, especially considering the result that close apomediary relationships lead to higher credibility ratings. If a close apomediary criticizes a message creator, this negative endorsement may lead to lower perceived credibility and message quality. Furthermore, this relationship might influence other variables in the model, such as empathy, and result in little or no attitude change. The difference in how the message was supported or criticized might be responsible for the lack of impact endorsements had on posttest danger and posttest social distance measures.

It is interesting to note that more effects were found for attitudes related to personal blame for mental illness. This may be due to the nature of the messages, which typically emphasized that individuals with mental illness aren't to blame for their

condition. It would be worth exploring how different message arguments might influence different attitudes in future research. For example, the stimuli messages contained statements directly stating that creators "didn't choose to feel this way" or that getting better "wasn't easy." It would be useful to test different types of arguments that better align with attitude measures, such as a lack of violent tendencies or positive social characteristics.

The final regression model reported in this chapter provides evidence to support the idea that social media variables influence attitude change after readers view mental illness messages. Close apomediary relationship predicted less stigmatized attitudes related to personal blame for mental illness. This might result from a desire to hold attitudes congruent with others, which is known to influence attitude change (Bohner & Wanke, 2002). Future research should explore why this relationship occurs. Empathy remained a significant predictor of attitude change. This supports the idea that empathy should be integrated into any model that aims to predict attitude change after exposure to social media mental illness. Future research should focus on how empathy is activated and to what extent it interacts with other persuasive processes.

Chapters Four and Five of this dissertation presented statistical analyses to address specific research questions and hypotheses posed in Chapter Two. The next chapter attempts to synthesize these results and provide implications for adjusting the proposed model tested.

# CHAPTER SIX: DISCUSSION

Entertainment and news media have long been associated with stigmatized depictions of mental illness (Wahl, 2003). In the news, mental illness is often blamed as the root cause of mass murders, shootings, and other sensational kills (McGinty et al., 2013). These associations lead to the perception that people with mental illnesses are more violent or dangerous than people without a mental illness. Research suggests that when individuals read newspaper articles that mention mental illness as the cause of a crime report harsher views toward people with mental illness (Thornton & Wahl, 1996). Criminals or villains are often characterized by their insanity or other mental illness in entertainment media. Wahl (2003) documented that children's media, such as video games or cartoon shows, often use references to mental illness to show that a character is bad or a criminal.

Prior research clearly establishes the link between viewing stigmatizing media content and an increase in stigmatized attitudes towards mental illness (Thornton & Wahl, 1996). Given this research, it is imperative for both media and public health researchers to discover ways to reduce stigma. My dissertation project examined how social media messages might aid communicators whose goal is to reduce mental illness stigma using online methods.

The purpose of my research was to better understand how individuals process social media messages about mental illness and which psychological processes influence attitudes about mental illness. More specifically, this dissertation tested how the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) might apply to first-person narratives on social media. Overall, this dissertation added to the body of

literature about the ELM by exploring how it might be applied to social media messages. It also explored how empathy, a key variable in stigma reduction, integrated into the traditional ELM model. In addition, it helped explain how message-processing variables, such as issue involvement and elaboration, influenced attitudes after viewing online user-generated messages about mental illness. This dissertation also investigated the role of apomediary relationships, message endorsements, and original message creator to better understand how variables specific to social media might influence message processing and outcomes. To fulfill these goals, one pilot study and two experiments were conducted.

The pilot study tested stimuli messages for the experiments. Experiment one was a 2 (message quality: low, high) x 2 (instructions: perspective-taking, objectivity) x 2 (message topic: bipolar disorder, depression) factorial design. The experiment examined how empathy evoked by a message interacted with perceived argument quality and elaboration, which is a fundamental piece of the ELM. Experiment two built upon the findings of experiment one by including social media variables as part of the experimental model. This experiment was a 2 (apomediary relationship: close apomediary, distant acquaintance) x 2 (message creator: discloses mental illness, does not disclose mental illness) x 2 (endorsement: positive, negative) x 2 (message topic: depression, bipolar disorder) x 2 (quality: high, low) factorial design. The second experiment examined message apomediary, commentary by the message sharer (apomediary), and mental illness status of the message creator influenced readers' elaboration, empathy, and attitudes. Before discussing the implications of the results, it is helpful to revisit the model proposed in Chapter Two of this dissertation.

## Review of Experimental Model

An experimental model was created to test hypotheses and research questions proposed. Higher issue involvement (interest in and experience with mental illness) was predicted to increase attention paid to the message, which would increase elaborations about the message. In turn, higher levels of elaboration were predicated to lead to less stigmatized attitudes about mental illness. In contrast, individuals with lower issue involvement were predicted to have lower elaboration levels and more stigmatized beliefs about mental illness. Perceived argument quality is a known contributor to attitude change in the ELM (Petty & Cacioppo, 1986). Argument quality was included in the message evaluation measure and was predicted to positively influence posttest attitudes about mental illness. Empathy was predicted to have a mediating effect between elaboration and attitudes about mental illness. These relationships, which are all related to traditional ELM predictions, were tested in experiment one.

Experiment two focused on the parts of the model that were related to social media message characteristics. Perceived endorsement from a trusted apomediary was predicted to influence overall message evaluation, especially for individuals with low issue involvement and elaboration. In other words, this variable was predicted to play a bigger role in peripheral route processing than central route processing. Similarly, perceived message creator credibility was predicted to influence overall perceptions of message quality, especially when issue involvement and elaboration were low. Perceived apomediary relationship should have little impact on message processing for individuals who have high-issue involvement. Figure 1.3 reviews the original model proposed by this dissertation.
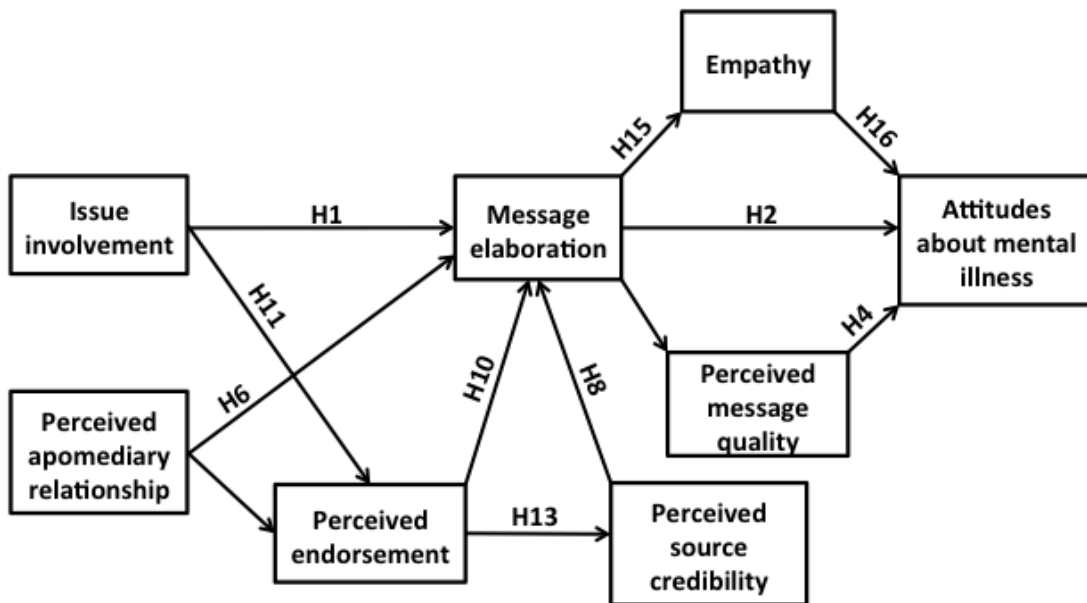
*Figure 1.3.* Proposed model for processing of counter-stigma social media messages.

The proposed model predicted several relationships. Results from the experiments align with some of these predictions, but contradict others. It is useful to interpret the results of each experiment separately before synthesizing them into a revised dual-process model for stigma reduction using mental illness messages on social media.

Several results replicated across both experiments. Increased empathy led to less stigmatized beliefs about mental illness for both bipolar and depression messages. This suggests that the effects of empathy may apply to mental illnesses other than the ones tested in this dissertation. Elaboration significantly predicted empathy across message topics, which suggests that the more engaged an individual is with a message the more likely they will be to engage in perspective-taking. In addition, both experiments reported that blame attitudes became less stigmatized with greater elaboration, but this relationship was not significant for other posttest attitudes. Some results were mixed between the

experiments. For example, issue involvement (experience with and interest in mental illness) only predicted greater elaboration for the bipolar messages in experiment one, but significantly influenced elaboration for both bipolar and depression messages in experiment two. These results are discussed below.

## Implications of Experiment One

This experiment sought to understand the relationships between perceived message quality, elaboration, and empathy on stigmatized attitudes about mental illness. One interesting finding was that issue involvement positively influenced elaboration, but only for the depression messages. Issue involvement included having a personal mental illness diagnosis and self-reported interest in mental illness. Given that depression is one of the most common mental illnesses (CDC, 2011), it may be the case that participants were more interested in or experienced with depression than bipolar disorder. Participants were not asked to identify which specific mental illness they were diagnosed with. Roughly one in four participants reporting having a mental illness, but almost half reported knowing a close family member with a mental illness. More specific measures of personal diagnosis and knowing someone with certain mental illnesses should be considered in future research. The relationship between specific mental illness diagnosis, interest in mental illness, and elaboration should be explored in future research to understand if the mental illness mentioned in a message affects participants in different ways based on issue involvement.

Those readers with more empathy after reading a social media message about mental illness had less stigmatized beliefs about mental illness across all posttest attitude measures for both bipolar and depression messages. This suggests that empathy is a vital

component to attitudes after exposure to mental illness messages. This finding supports previous research, which focused on the role of empathizing with individuals who had stigmatized health conditions (for examples, see Batson et al., 2002; Chung & Slater, 2012; Cutler et al., 2009). A key result from this study is that message elaboration predicted empathy for both bipolar and depression messages. This might be because thinking about the message and taking the perspective of the author require cognitive effort, or elaboration, and empathy is unlikely to be evoked unless individuals are actively thinking about the message.

However, elaboration did not universally influence attitudes about mental illness. Increased elaboration predicted less stigmatized beliefs about personal blame for mental illness after viewing both message topics. This relationship was not shown for dangerousness of mental illness or preferred social distance from mentally ill individuals. On the surface, this suggests that elaboration may not predict attitudes for certain mental illnesses or specific attitudes. However, it might be the case that the thought origin and valence of the elaboration impact posttest attitudes rather than just amount of thinking about the message. This should be explored in future research. In addition, the nature of the stimuli messages might have been biased towards countering the stigma related to personal blame. Further, exposure to one or even two short narratives is unlikely to alleviate the entire spectrum of held beliefs. A more diverse selection of stimuli developed to address specific beliefs, such as dangerousness, and using different mental illness terms should investigate this in future research.

Like empathy, when participants perceived that the message had higher argument quality, participants also reported less stigmatized beliefs related to blame after both

bipolar and depression messages. A similar relationship was reported for dangerousness attitudes after bipolar messages, but not after depression messages. Higher perceived argument quality also positively influenced preferred social distance such that participants had less desire to avoid interaction with individuals with mental illness after reading bipolar and depression messages. This implies that messages with stronger arguments had more influence than messages with weaker arguments.

Overall, this experiment was consistent with predictions proposed by the ELM Interest in mental illness consistently predicted elaboration across message topics. A new contribution was the finding that elaboration influenced empathy, which in turn reduced mental illness stigma. This finding is the most important in this study for developing a revised ELM model for reducing stigma through first-person social media narratives. Given this result, the relationships between characteristics of social media messages were further explored to better understand how they might contribute to an ELM-based model.

### Implications of Experiment Two

Several results were replicated from experiment one. As in experiment one, greater elaborations led to less stigmatized beliefs about personal blame for mental illness, but did not influence beliefs about dangerousness or preferred social distance. It may be the case that first-person narratives are more conducive to changing attitudes about blame because of the nature of sharing one's own experiences via a social media post.

Participants who perceived that a message creator had a mental illness rated the creator as more credible. This may be related to the idea of experiential knowledge of a topic (Gregory & Miller, 2000). There may be a perceived difference in professional,

medical expertise and expertise related to having and personal experiencing a mental illness. This distinction is worth exploring in future research. It might also be the case that an individual perceives an apomediary as an expert in a certain health topic because the apomediary spends a lot of time researching or reading about it. These alternative definitions of expertise should be tested in future research.

In addition, participants who thought a close apomediary shared the message reported higher message creator credibility than those who thought a distant acquaintance shared the message. These results demonstrate that message creator mental illness disclosure and perceived apomediary relationship influenced source credibility. This implies that both the claims of the author and the commentary from an apomediary influenced perceptions of the message. However, the relationship between source credibility and attitudinal outcomes was not significant. This suggests that other variables, such as argument quality and empathy evoked, have more influence on attitudes after viewing a message than credibility of its author. Furthermore, positive endorsements from apomediaries decreased posttest blame for mental illness. It is possible that endorsement comments provide peripheral cues to processing the message such that endorsements primed participants to perceive the message in a certain way. This relationship should be explored in future research.

## Revised Model

Based on the results from experiment one and two, the original model was revised. This model rearranges the variables from the original model to be more consistent with results reported by these experiments. In addition, it includes pathways that correspond to central- and peripheral-route processing. Figure 6.1 explicates the new

model proposed to explicate a dual-process approach to stigma reduction using user-generated messages on social media.

As with the original model, the revised model assumes that issue involvement will influence which message variables are most important when processing a social media message about mental illness. This is consistent with previous research that suggests different variables or cues become more important based on individual's motivation to process the message as predicted by issue involvement (Petty & Cacioppo, 1986).

When issue involvement is low, peripheral cues for message processing are used. Peripheral cues are considered apomediary relationship and endorsement. Close apomediary relationships and positive endorsements are predicted to positively influence elaboration for individuals using the peripheral route. These two variables should give individuals on the peripheral route a heuristic shortcut for evaluating quality of the message. The relationship between close apomediary message sharers and perceptions of quality approached significance for both bipolar and depression messages, as reported in experiment two. No specific predictions were made regarding the relationship between perceived endorsement and quality, and this analysis is left for future studies.
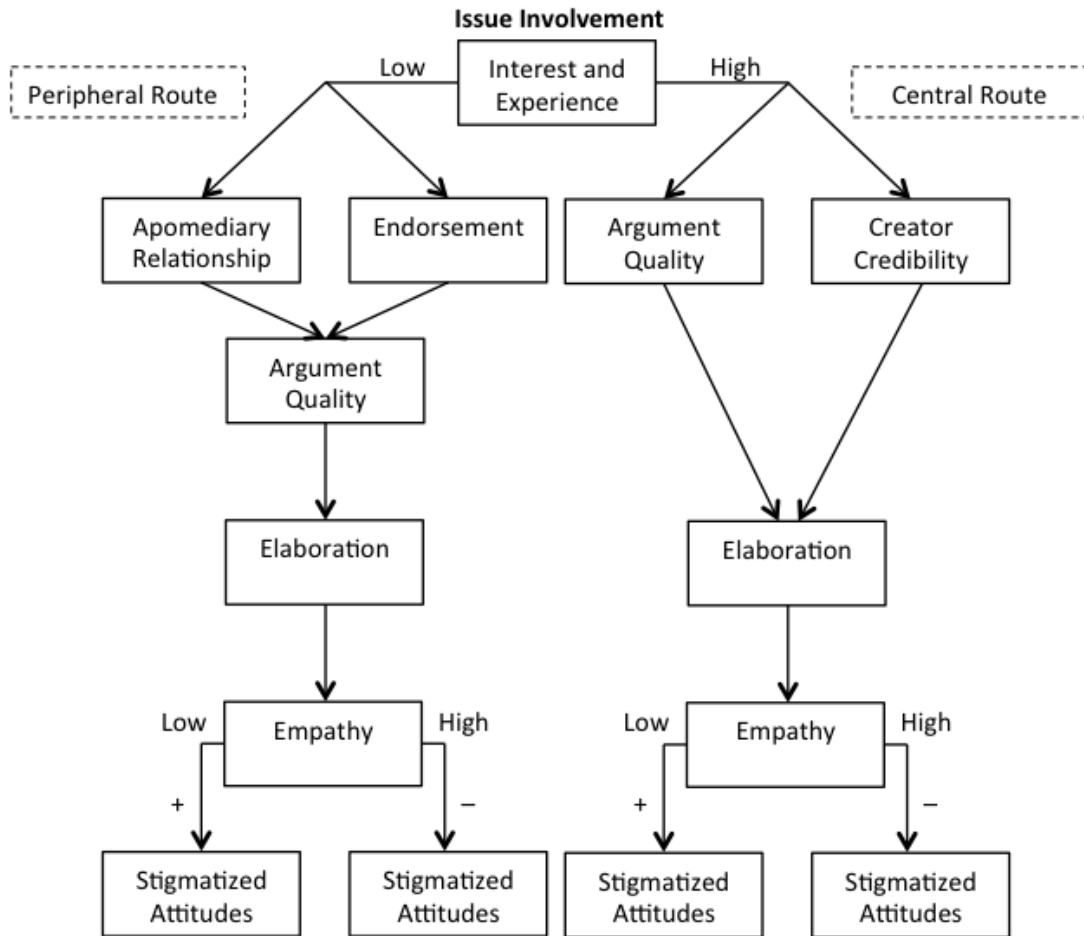
*Figure 6.1.* Revised dual-processing model of stigma reduction using social media messages.

Elaborations about apomediary relationship, endorsement, and argument quality should in turn influence empathy evoked by the social media message. Positive elaboration should lead to more empathy and less stigmatized attitudes about mental illness. Negative elaboration should lead to less empathy and produce more stigmatized attitudes about mental illness. In both situations, amount of elaboration should be relatively low. This is consistent with previous literature that predicts positively valenced, low elaboration predicts attitudes consistent with the persuasive message when

individuals use the peripheral route (Petty et al., 2009). In addition, it is consistent with results from both experiments executed in this dissertation project. In both experiments, higher levels of empathy predicted less stigmatized attitudes about mental illness across message topics and for all attitudinal measures, and empathy was significantly predicted in experiment one.

If an individual's issue involvement is high, they should process a message using the central route (Petty & Cacioppo, 1986). Individuals who use the central route should use deeper cognitions to evaluate a message. Argument quality and message creator credibility are predicted to positively influence elaboration for individuals on this path. Experiment two reported that higher perceived argument quality positively predicted elaboration when viewing either a bipolar disorder or depression message. No specific predictions regarding the relationship between message creator credibility and elaboration were tested in this dissertation project, and this analysis is left for future studies. Positive elaboration about the message quality and creator credibility should lead to more empathy and less stigmatized attitudes about mental illness. Negative elaboration should lead to less empathy and produce more stigmatized attitudes about mental illness. Again, this is consistent with previous literature that predicts positively valenced, high elaboration predicts attitudes that are consistent with the persuasive message when individuals use the central route (Petty et al., 2009). In addition, it is consistent with results from this dissertation project, which found that higher levels of empathy predicted less stigmatized attitudes about mental illness across message topics and for all attitudinal measures.

**Practical Implications**

There are several practical implications for this research. First, it lends support for the idea that mental illness stigma reduction campaigns could use empathy to create attitude change. The use of first-person narratives seems to produce empathy, and the use of this structure should be considered when creating campaign messages. However, message quality must still be considered because low perceived quality may outweigh the positive influence of empathy on message exposure outcomes.

Considerations must be made regarding who is likely to view a message shared on social media. First-person narratives posted on social media might be shared and commented on by any number of users. These users might share the message with a positive endorsement, but they might also share it with a negative endorsement. The presence of an endorsement might influence how other users perceive the message that is shared, which may be counter to the intention of the campaign. It would be useful to identify opinion leaders (see Katz, 1957) or solicit audiences who are likely to agree with the anti-stigma message in order to increase the likelihood of the shared message receiving positive endorsements.

Public opinion is known to influence governmental policies, such as taxes, economics, rights/discrimination, health care, and economic issues (Burstein, 2003). Wahl (2003) suggested that public opinion about mental illness directly influences health care policies, crime or public safety laws and regulations, and issues related to individual rights. It follows that changing stigmatized attitudes through health campaigns could eventually have effects on public policy. In addition, raising awareness about mental illness through social media campaigns could increase attention to the issue, which might

lead to policy changes. This research suggests that the nature of social media sharing and the quality of first-person narratives should be considered whenever campaign creators aim to raise awareness or reduce stigma in the hopes of achieving other long-term goals related to public policy.

Previous research suggests that reading about another person's struggles with a difficult health issue increases empathy for individuals with the same health concern (Burleson, 2009; Kellas et al., 2014). This dissertation further supports this finding by showing that individuals who read a first-person narrative shared on social media often have increased empathy for individuals with mental illness. These messages are intended to be persuasive and may be less overt than traditional advertising campaigns. However, user-generated narratives must be produced for these effects to occur. Health communication professionals should think about how to properly spread a campaign so that users generate messages to share on social media. Some strategies might include using hash tags like the NAMI (2015) #IAmStigmaFree campaign. Using hash tags helps connect the message to an overall campaign and would greatly help with the evaluation of any online campaign that encourages individuals to share personal stories online.

A practical concern not addressed by this dissertation is the likelihood of sharing personal stories about mental health. Mental illness is often a concealable disease. Concealability is a dimension that describes whether or not a stigmatized trait is easily hidden from others (Feldman & Crandall, 2007). Many individuals with a mental illness choose not to reveal this health issue for fear of negative experiences or social repercussions (Feldman & Crandall, 2007). This desire for concealing a condition is a result of perceived stigma regarding mental illness (Hatzenbuehler et al., 2013), which

complicates any strategy that seeks to have individuals share experiences in public, such as on Facebook or Twitter. Future research should investigate how campaigns might elicit participation from individuals with stigmatized conditions.

## Limitations

Although several useful findings were reported in this dissertation, it was not without its limitations. The number of participants in each unique message condition was rather small. Such a small cell size reduced power, which likely affected the ability to detect small effect sizes in the analyses (Slaven & Smith, 2009). There was also a large amount of variance left unexplained for many of the tests conducted. For example, the regression model predicting posttest attitudes about blame for mental illness based on elaborations of a bipolar message produced $R^2 = .08$. This leaves a large amount of the variance (more than 90%) unexplained by the model. Further research should explore other variables that may increase the ability of the model to predict mental illness attitudes.

Another limitation was the artificiality of the experiment. Although any experiment has a level of artificiality (Berkowitz & Donnerstein, 1982), several components in this project may have increased this perception. The stimuli messages and endorsements may not have been realistic in terms of what users might come across on social media. Of particular concern were the manipulation of message quality and the target of endorsement praise or criticism. The low-quality messages used no capitalization, misspelled words, and used shorthand such as & and b/c. These messages were perceived as low quality, but it may have been too obvious of a manipulation. This was evident in a cursory glance at thought-list responses, which were not analyzed for

this study, that specifically critiqued the message by commenting, "This seems fake," or "Nobody really writes like that." It would be worth exploring if other variables, such as education or age, influence perceptions of quality of a social media message and to what extent these differences influence attitude change. A more realistic manipulation might be to only include a few mistakes in the grammar or capitalization. This should be explored in future studies.

In addition, the nature of positive and negative endorsements differed. These messages pretested appropriately, but they targeted different parts of the message. For example, the positive endorsements praised the thoughts presented in the message and suggested that the sharer enjoyed it. The negative endorsements attacked the message creator, which might evoke a different response if they had attacked the arguments in the message. Again, endorsements should be further explored to understand how the target of the comment might influence audience perceptions.

Efforts were made to pretest mental illness conditions. However, there were some differences discovered between message topics. For example, the first experiment reported that issue involvement influenced elaboration, but only for the depression message. The nature of different mental illness messages may influence the outcome variables tested in this dissertation. In addition, the messages contained specific mental illness conditions (bipolar disorder and depression), but attitudinal measures asked questions about mental illness in general, as have those in previous studies.. Furthermore, personal experience with a mental illness (personal diagnosis and knowing someone else with a diagnosis) did not specify any particular disease. It might be the case that individuals have experience with a specific mental illness, such as depression, but not

with others. This might influence processing of a message about mental illness, especially if the individual does not have experience with the illness used. Similarly, interest in mental illness in general may differ in similar ways. It is worth exploring how interest in and experience with specific mental illnesses influence processing and outcomes related to that mental illness, as well as other illnesses with which individuals are not experienced with.

A significant weakness in measures used in this study was the lack of thought origin and valence data. These elements are known to influence attitude change and should be included as a supplement to amount of elaboration (Petty et al., 2009). Thought lists were collected, but not analyzed for this dissertation. Analyzing these data might provide a more nuanced understanding of how specific elaborations, for example agreeing with the message, might influence attitudes about mental illness.

Another weakness in this dissertation was the lack of measures for ability to process a message. Elaboration is determined by motivation to process a message and ability to do so (Petty & Cacioppo, 1986). Motivation to process a social media message was measured using personal interest and experience with mental illness. Ability to process a message refers to the cognitive capacity and skills to process a message (Wagner & Petty, 2011). Ability may vary because of several variables, including intelligence and environmental distractors at the time of message consumption. Ability to process a message was not directly measured in this project because it was unlikely that this variable would be important given the short messages and the attention checks that would remove anyone who experienced too much environmental distraction from participating. Analysis of open-ended answers collected from participants may serve

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useful in estimating ability to process messages and should be examined in future research.

Manipulation checks indicated that some of the manipulations might not have been attended to given that roughly 62% of participants missed at least one manipulation check. It may be the case that the manipulations were not strong enough to be noticed by participants and thereby would not influence attitudes after viewing the message. Of particular concern was the attempt to activate and measure the apomediary construct. It is very artificial to ask participants to pretend a message is from a specific person. Although similar manipulations are used to activate thoughts about a source in previous research (Bohner & Wanke, 2002), it is unclear whether or not participants truly engage with the cognitions associated with an apomediary in the same way they would if they came across a shared message on social media. Part of the manipulation asked participants to type a few sentences describing the person they were cued to think about. It would be worth analyzing these responses to determine to what extent participants engaged with the manipulation.

Another limitation was the use of Amazon's Mechanical Turk (MTurk) to recruit participants. Samples were recruited from participants who volunteered to be on the service and self-selected into the studies. The samples recruited were overwhelmingly white, female, and reported fairly high interest in mental illness in pretest measures. It seems unlikely that so many people would report high interest in mental illness and this might be a result of the recruitment message. The recruitment message mentioned that the studies were about stigmatized health conditions, which might draw more individuals who are interested in and motivated to think about mental illness messages.

Another limitation regarding the sample was a lack of individuals who said they had no personal experience and did not know anyone with a mental illness. Twenty-two percent of participants in experiment one did not know someone with a mental illness, and roughly 30% of individuals reported not knowing someone with a mental illness in experiment two. Stigma reduction studies suggested that interacting with someone with mental illness, such as a family member, is greatly effective in reducing stigmatized beliefs (Corrigan et al., 2012; Couture & Penn, 2003). The high number of individuals who know someone with a mental illness, such as a close family member, may confound these results because those participants are more likely to have lower stigmatized beliefs and increase empathize with message-post authors. It may be the case that individuals who do not know anyone with mental illness react differently to social media messages either in terms of motivation to process the message or empathetic reactions to the posts.

### Future Research

This project revealed several areas for future research. A clear next step is to code the thought-lists collected for elaboration and apomediary manipulations. Providing additional variables, such as valence, might explicate relationships between these concepts, message processing, and outcomes. For example, it might be the case that negative elaborations about a source significantly influence empathy produced by the social media message. This relationship is worth exploring and testing using the data that were collected for this dissertation.

Stigmatized attitudes about mental illness vary on many levels, and there was only one message for each mental illness in this dissertation project. Additional manipulations for activating the apomediary construct should be tested. One potential

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change to the manipulation is to ask participants to think of someone who is an expert on health topics instead of a general person they trust as instructed in the second experiment. This might reduce the error variance in the results reported and increase the predictive power of the experimental model.

An interesting result was the tendency for more predictions to be supported related to blame for mental illness than dangerousness or preferred social distance. This suggests that empathy and elaboration might be best suited to address specific attitudes related to mental illness, such as laziness or difficulty of overcoming struggles associated with a diagnosis. Other message strategies, such as fact-based approaches, might be more effective at reducing stigma related to the dangerousness of individuals with mental illness. Future projects should explore how different variables, such as knowledge gain, might replace empathy in the proposed model when attempting to change this kind of attitude.

Future research should test the revised model using different first-person narrative, endorsements, and mental illness to further explore its potential for predicting attitude change after exposure to social media messages about mental illness. Other social media characteristics should also be explored. Shareability is a key attribute of social media (boyd, 2010). Given that the aim of many social media campaigns is to increase exposure to messages by encouraging users to share the message, a potentially fruitful exploration would be how dual-process variables influence the likelihood of sharing, liking, or commenting on an anti-stigma message.

## Conclusion

Overall, this dissertation supported the potential for using a dual-process approach to reducing mental illness stigma using mental illness messages on social media. The revised model offers new avenues of research that will further explicate findings in this dissertation and generate additional research questions related to the use of ELM in social media settings. Future developments in both mental illness stigma-reduction strategies and affordances of social media will continue to shape new models of persuasion. It is possible that this model may be applied to any stigmatized health condition and future studies should test different medical conditions.

The replication of basic ELM predictions, such as elaboration predicting message processing outcomes, confirms the idea that older theories are still applicable to new technologies. This project explained how a more established theory may be adjusted to fit the affordances of new technology, such as social media. Communication scholars should reevaluate how message source and message quality are both conceptualized and measured. It is longer be adequate to only conceptualize a source as the person who originally created a message. It is clear that there are some effects from the apomediary, or the person who shared the message, on social media. In addition, social media audiences may react differently to traditional manipulations of quality, such as poor spelling and grammar.

This research project established groundwork for future research that will explicate the complex process of persuasion on social media. It is my hope that this dissertation provides direction for creating new models for understanding persuasive processes and outcomes in new media environments. With further study and refinement,

this revised model could prove useful in moving both persuasive theories and stigma-reduction strategies forward into the digital age.

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**APPENDICES**

# Appendix A: Pilot Study -- Pretest Questionnaire

How familiar are you with the topic of mental illness?
- ○ Not at all familiar (1)
- ○ Unfamiliar (2)
- ○ Familiar (3)
- ○ Very familiar (4)

Have you ever been diagnosed with a mental illness?
- ○ Yes (1)
- ○ No (2)

Do you personally know someone who has a mental illness?
- ○ Yes (1)
- ○ No (2)

If yes, how are they related to you?
- ❑ Close friend (1)
- ❑ Significant other (7)
- ❑ Acquaintance (2)
- ❑ Close family member (3)
- ❑ Distant family member (4)
- ❑ Work or school peer (5)
- ❑ Other (6) _____

Please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I make a point to read and watch news stories about mental health. (1) | ○ | ○ | ○ | ○ | ○ |
| I enjoy learning about mental health issues. (2) | ○ | ○ | ○ | ○ | ○ |
| To be and stay healthy, it's critical to be informed about mental health issues. (3) | ○ | ○ | ○ | ○ | ○ |
| I need to know about mental health issues so I can keep myself and my family healthy. (4) | ○ | ○ | ○ | ○ | ○ |
| When I see a news story about mental health, I usually skip it. (5) | ○ | ○ | ○ | ○ | ○ |
| I'm not really interested in mental health topics. (6) | ○ | ○ | ○ | ○ | ○ |

The following section contains a series of mental illnesses. We are interested in your thoughts and opinions about each illness.

Please indicate your agreement with the following statements about **depression**.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Depression is a sign of personal weakness. (1) | ○ | ○ | ○ | ○ | ○ |
| I would not vote for a politician if I knew they had been diagnosed with depression (2) | ○ | ○ | ○ | ○ | ○ |
| People with depression could snap out of it if they wanted. (3) | ○ | ○ | ○ | ○ | ○ |
| Depression is not a real medical illness. (4) | ○ | ○ | ○ | ○ | ○ |
| It is best to avoid people with depression so that you don't become depressed yourself. (5) | ○ | ○ | ○ | ○ | ○ |
| People with depression are dangerous. (6) | ○ | ○ | ○ | ○ | ○ |
| If I had depression I would not tell anyone. (7) | ○ | ○ | ○ | ○ | ○ |
| People with depression are unpredictable. (8) | ○ | ○ | ○ | ○ | ○ |
| I would not want to work with someone if I knew they had been diagnosed with depression. (9) | ○ | ○ | ○ | ○ | ○ |
| This is an attention check. Please answer neither agree or disagree. (10) | ○ | ○ | ○ | ○ | ○ |

Please indicate your agreement with the following statements about **anxiety**.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Anxiety is a sign of personal weakness. (1) | ○ | ○ | ○ | ○ | ○ |
| I would not vote for a politician if I knew they had been diagnosed with an anxiety disorder. (2) | ○ | ○ | ○ | ○ | ○ |
| People with anxiety could snap out of it if they wanted. (3) | ○ | ○ | ○ | ○ | ○ |
| Anxiety is not a real medical illness. (4) | ○ | ○ | ○ | ○ | ○ |
| It is best to avoid people with anxiety so that you don't become anxious yourself. (5) | ○ | ○ | ○ | ○ | ○ |
| People with anxiety disorders are dangerous. (6) | ○ | ○ | ○ | ○ | ○ |
| If I had an anxiety disorder I would not tell anyone. (7) | ○ | ○ | ○ | ○ | ○ |
| People with anxiety are unpredictable. (8) | ○ | ○ | ○ | ○ | ○ |
| I would not want to work with someone if I knew they had been diagnosed with an anxiety disorder. (9) | ○ | ○ | ○ | ○ | ○ |

Please indicate your agreement with the following statements about **Post-traumatic Stress Disorder (PTSD)**.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| PTSD is a sign of personal weakness. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not vote for a politician if I knew they had been diagnosed with PTSD. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with PTSD could snap out of it if they wanted. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| PTSD is not a real medical illness. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| It is best to avoid people with PTSD so that you don't become affected yourself. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with PTSD are dangerous. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| If I had PTSD I would not tell anyone. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with PTSD are unpredictable. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not want to work with someone if I knew they had been diagnosed with PTSD. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |

Please indicate your agreement with the following statements about **bipolar disorder**.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Bipolar disorder is a sign of personal weakness. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not vote for a politician if I knew they had been diagnosed with bipolar disorder. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with bipolar disorder could snap out of it if they wanted. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| This is an attention check. Please answer neither agree or disagree. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Bipolar disorder is not a real medical illness. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| It is best to avoid people with bipolar disorder so that you don't become affected yourself. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with bipolar disorder are dangerous. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| If I had bipolar disorder I would not tell anyone. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with bipolar disorder are unpredictable. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not want to work with someone if I knew they had been diagnosed with bipolar disorder. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |

Please indicate your agreement with the following statements about **mental illness**.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Mental illness is a sign of personal weakness. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not vote for a politician if I knew they had been diagnosed with a mental illness. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with mental illness could snap out of it if they wanted. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Mental illness is not a real medical illness. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| It is best to avoid people with mental illness so that you don't become mentally ill yourself. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| This is an attention check. Please answer neither agree or disagree. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with mental illnesses are dangerous. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| If I had a mental illness I would not tell anyone. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| People with a mental illness are unpredictable. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would not want to work with someone if I knew they had been diagnosed with a mental illness. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |

## Appendix B: Pilot Study -- Posttest Questionnaire

We are interested in what you were thinking about while reading the message. Use the space below to list everything you were thinking while reading the statement.

(Text box)

Please indicate your level of agreement with the following statements about the message you just read.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| The message made its point effectively. (1) | ○ | ○ | ○ | ○ | ○ |
| The message was convincing. (2) | ○ | ○ | ○ | ○ | ○ |
| I liked the message. (3) | ○ | ○ | ○ | ○ | ○ |
| The message was not well written. (4) | ○ | ○ | ○ | ○ | ○ |
| The message was persuasive. (5) | ○ | ○ | ○ | ○ | ○ |
| The message was of poor quality. (6) | ○ | ○ | ○ | ○ | ○ |
| The message was believable. (7) | ○ | ○ | ○ | ○ | ○ |
| The message was easy to understand. (8) | ○ | ○ | ○ | ○ | ○ |
| The message gave strong reasons for supporting individuals with mental illness. (9) | ○ | ○ | ○ | ○ | ○ |
| This is an attention check. Please answer with neither agree or disagree. (10) | ○ | ○ | ○ | ○ | ○ |
| I was moved by the writer's experience. (11) | ○ | ○ | ○ | ○ | ○ |
| I felt no concern for people like the one who wrote this message. (12) | ○ | ○ | ○ | ○ | ○ |
| I felt sympathetic towards the writer of the message. (13) | ○ | ○ | ○ | ○ | ○ |

Demographic Questions

What is your current age?
- ❍ 18-24 (1)
- ❍ 25-34 (2)
- ❍ 35-44 (3)
- ❍ 45-54 (4)
- ❍ 55-65 (5)
- ❍ Over 65 years old (6)

What gender do you most closely identify with?
- ❍ Male (1)
- ❍ Female (2)
- ❍ Other (3) _____
- ❍ Prefer not to answer (4)

How do you identify yourself? Check all that apply.
- ❑ White / Caucasian (1)
- ❑ Hispanic or Latino (2)
- ❑ Black or African American (3)
- ❑ Native American or American Indian (4)
- ❑ Asian / Asian American (5)
- ❑ Other (6) _____

What is the highest degree or year of school you have completed?
- ❍ Less than high school (1)
- ❍ Some high school (2)
- ❍ High school graduate or equivalent (for example: GED) (3)
- ❍ Some college (4)
- ❍ Associate degree (5)
- ❍ Bachelor's degree (6)
- ❍ Master's degree (7)
- ❍ Doctorate degree (8)
- ❍ Other (9) _____

What is your employment status?
- ❍ Full-time (1)
- ❍ Part-time (2)
- ❍ Self-employed (3)
- ❍ Retired (4)
- ❍ Unemployed (5)
- ❍ Other (please specify) (6) _____

What is your household income?

❍ Less than $10,000 (1)
❍ $10,001 to $19,999 (2)
❍ $20,000 to $29,999 (3)
❍ $30,000 to $39,999 (4)
❍ $40,000 to $49,999 (5)
❍ $50,000 to $59,999 (6)
❍ $60,000 to $69,999 (7)
❍ $70,000 to $79,999 (8)
❍ $80,000 to $89,999 (9)
❍ $90,000 to $99,999 (10)
❍ $100,000 to $149,999 (11)
❍ $150,000 or more (12)

**Appendix C: Pilot Study -- Stimulus Messages**

Stimulus 1: Mental illness topic, high-quality message

Chances are you know someone with a mental illness, but you may not know who it is. I have a mental illness and few of my friends know about it because I'm afraid of what they'll think.

There's a lot of stigma about mental illness. You might think people with mental illnesses are lazy or could get better if they tried. I have a mental illness and it's not that easy. You can't just get over it or stop feeling this way overnight. Mental illness is not a choice – it's an illness.

I have experienced the negative impact of stigma in my life. I lost my job just for having a diagnosis, couldn't get a lease at an apartment I wanted, and lost friends simply because I have a mental illness.

I felt guilty and ashamed. I started to believe that I was a bad person and that I wasn't good enough for anything. I didn't seek help or go to a doctor for my mental illness because of the stigma. But I finally sought treatment and I learned how to manage my illness and I'm living a better life.

Mental illness is treatable, but no one benefits from stigma. Spread the word and stop the stigma.

Stimulus 2: Mental illness topic, low-quality message

chances are you know someone with a mental illness but you may not know who it is i have a mental illness & few of my friends know about it b/c im afraid of what theyll think

theres alot of stigma about mental illness you might think people w/ mental illneses are lazy or could get better if they tried i have a mental illness & its not that easy you cant just get over it or stop feeling this way overnight mental illness is not a choice its an illness

i have experienced the negative impact of stigma in my life i lost my job just for having a diegnosis couldnt get a lease at an apartment i wanted & lost friends simply because i have a mental illness

i felt guilty & ashamed i started to believe that i was a bad person & that i wasnt good enough for anything i didnt seek help or go to a docter for my mental illness b/c of the stigma but i finally sought treatment & i learned how to manage my illness & im living a better life

mental illness is treatable but no one benefits from stigma spread the word & stop the stigma

Stimulus 3: Depression topic, high-quality message

When I was first diagnosed with depression I was told "don't tell people what's wrong with you" by my mother. I am embarrassed and ashamed that I cannot do the things you can do because of my depression. Please don't make it worse by humiliating me and insisting that my struggles are baseless.

I didn't choose to feel this way. I can call in sick when I have the flu, when my physical diseases are flaring up, but never when I'm so affected by my depression that it hurts. How is that fair?

I have felt this stigma over and over again. One of my friends was really surprised that it would be something that affected me. She thought someone who'd achieved as much as me couldn't have experienced depression. I had to explain to her that there isn't a single type of person who goes through depression – it can affect anyone.

I lost my job – despite having a good performance record  – when my boss found out I was diagnosed with depression. Some of my other friends suddenly acted like I would break down and cry at any minute. Just because I have depression doesn't mean I'm not me anymore.

This kind of reaction kept me from seeking treatment for a long time. I was too scared and ashamed to get the help I needed. But once I finally sought treatment I learned how to manage my depression and I'm living a better life with the help of my doctors.

We all need to work together, so that individuals get the right support and aren't shunned just because of their problems with depression. Spread the word and stop the stigma.

Stimulus 4: Depression topic, low-quality message

when i was first diagnosed with depression i was told dont tell people whats wrong with you by my mother i am embarased & ashamed that i cant do the things you can do b/c of my depresion please dont make it worse by humiliating me & insisting that my struggles are baseless

i didnt choose to feel this way i can call in sick when i have the flu when my physical diseases are flaring up but never when im so effected by my depression that it hurts how is that fair?!

i have felt this stigma over & over again one of my friends was really surprised that it would be something that effected me she thought someone whod achieved as much as me couldnt have depression i had to explain to her that there isnt a single type of person who goes through depresion it can effect anyone

i lost my job despite having a good perfermance record when my boss found out i was diagnosed with depression some of my other friends suddenly acted like i would break down & cry at any minute just because i have depression doesnt mean im not me anymore

this kind of reaction kept me from seeking treatment for a long time i was too scared & ashamed to get the help i needed but once i finally soght treatment i learned how to manage my depression & im living a better life with the help of my doctors

we all need to work together so that individuals get the right support & arent shunned just b/c of their problems w/ depression spread the word and stop the stigma

# Appendix D: IRB -- Initial Approval

**IRB ID #:**    201511800

**To:**    Stephanie Miles

**From:**    IRB-02    DHHS Registration # IRB00000100,
Univ of Iowa,    DHHS Federalwide Assurance # FWA00003007

**Re:**    Mental Illness Stigma Reduction Using Online, User-Generated Narratives in Social Media Messages

---

**Approval Date:**    12/04/15

**Next IRB Approval
Due Before:**    12/03/16

| **Type of Application:** | **Type of Application Review:** | **Approved for Populations:** |
|---|---|---|
| ☒ New Project | ☐ Full Board: | ☐ Children |
| ☐ Continuing Review | Meeting Date: | ☐ Prisoners |
| ☐ Modification | ☒ Expedited | ☐ Pregnant Women, Fetuses, |
| Neonates | | |
| | ☐ Exempt | |

Source of Support:

---

This approval has been electronically signed by IRB Chair:
Janet Karen Williams, PHD
12/04/15 1330

**IRB Approval:**  IRB approval indicates that this project meets the regulatory requirements for the protection of human subjects.  IRB approval does not absolve the principal investigator from complying with other institutional, collegiate, or departmental policies or procedures.

**Agency Notification:**  If this is a New Project or Continuing Review application and the project is funded by an external government or non-profit agency, the original HHS 310 form, "Protection of Human Subjects Assurance Identification/IRB Certification/Declaration of Exemption," has been forwarded to the UI Division of Sponsored Programs, 100 Gilmore Hall, for appropriate action.  You will receive a signed copy from Sponsored Programs.

**Recruitment/Consent:**  Your IRB application has been approved for recruitment of subjects not to exceed the number indicated on your application form.  If you are using written informed consent, the IRB-approved and stamped Informed Consent Document(s) are attached.  Please make copies from the attached "masters" for subjects to sign when agreeing to participate.  The original signed Informed Consent Document should be placed in your research files.  A copy of the Informed Consent Document should be

given to the subject.  (A copy of the *signed* Informed Consent Document should be given to the subject if your Consent contains a HIPAA authorization section.)  If hospital/clinic patients are being enrolled, a copy of the IRB approved Record of Consent form should be placed in the subject's electronic medical record.

**Continuing Review:**  Federal regulations require that the IRB re-approve research projects at intervals appropriate to the degree of risk, but no less than once per year.  This process is called "continuing review." Continuing review for non-exempt research is required to occur as long as the research remains active for long-term follow-up of research subjects, even when the research is permanently closed to enrollment of new subjects and all subjects have completed all research-related interventions and to occur when the remaining research activities are limited to collection of private identifiable information. Your project "expires" at 12:01 AM on the date indicated on the preceding page ("Next IRB Approval Due on or Before").  You must obtain your next IRB approval of this project on or before that expiration date.  You are responsible for submitting a Continuing Review application in sufficient time for approval before the expiration date, however the HSO will send a reminder notice approximately 60 and 30 days prior to the expiration date.

**Modifications:**  Any change in this research project or materials must be submitted on a Modification application to the IRB for prior review and approval, except when a change is necessary to eliminate apparent immediate hazards to subjects.  The investigator is required to promptly notify the IRB of any changes made without IRB approval to eliminate apparent immediate hazards to subjects using the Modification/Update Form. Modifications requiring the prior review and approval of the IRB include but are not limited to:  changing the protocol or study procedures, changing investigators or funding sources, changing the Informed Consent Document, increasing the anticipated total number of subjects from what was originally approved, or adding any new materials (e.g., letters to subjects, ads, questionnaires).

**Unanticipated Problems Involving Risks:**  You must promptly report to the IRB any serious and/or unexpected adverse experience, as defined in the UI Investigator's Guide, and any other unanticipated problems involving risks to subjects or others.  The Reportable Events Form (REF) should be used for reporting to the IRB.

**Audits/Record-Keeping:**  Your research records may be audited at any time during or after the implementation of your project.  Federal and University policies require that all research records be maintained for a period of three (3) years following the close of the research project.  For research that involves drugs or devices seeking FDA approval, the research records must be kept for a period of three years after the FDA has taken final action on the marketing application.

**Additional Information:**  Complete information regarding research involving human subjects at The University of Iowa is available in the "Investigator's Guide to Human Subjects Research."  Research investigators are expected to comply with these policies and procedures, and to be familiar with the University's Federalwide Assurance, the Belmont Report, 45CFR46, and other applicable regulations prior to conducting the research.  These documents and IRB application and related forms are available on the Human Subjects Office website or are available by calling 335-6564.

## Appendix E: Pretest -- Instructions, Questionnaire, and Stimuli

**Study Purpose**

The purpose of this research study is to understand how people respond to messages about mental illness. You will answer a series of questions after each message. It is important to be honest when you answer. There are no right or wrong answers. We are only interested in your personal opinion. All answers will remain anonymous.

This study is about mental illness messages. You may experience emotional or psychological distress as a result of the message content or your own experiences with this topic. There are no other risks to participating and you are free to stop at any time. If you have questions about this study, please contact Stephanie Miles (stephanie-miles@uiowa.edu). You may keep this stapled sheet for your records.

**Instructions**

Do not put your name anywhere on the test form.

Please read the following two messages carefully. After reading each message, you will answer several questions about the message. Turn the page for the second message. Turn the sheet into your professor once you have completed both sides.

Thank you for participating in this brief study.

# Pretest -- Questionnaire

**Questions**
Please indicate your level of agreement with the following statements about the message you just read. Circle only one number per statement.

| Statements | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The message made its point effectively. | 1 | 2 | 3 | 4 | 5 |
| The message was convincing. | 1 | 2 | 3 | 4 | 5 |
| I liked the message. | 1 | 2 | 3 | 4 | 5 |
| The message was not well written. | 1 | 2 | 3 | 4 | 5 |
| The message was persuasive. | 1 | 2 | 3 | 4 | 5 |
| The message was of poor quality. | 1 | 2 | 3 | 4 | 5 |
| The message was believable. | 1 | 2 | 3 | 4 | 5 |
| The message was easy to understand. | 1 | 2 | 3 | 4 | 5 |
| The message gave strong reasons for supporting people with mental illness. | 1 | 2 | 3 | 4 | 5 |
| I was moved by the writer's experience. | 1 | 2 | 3 | 4 | 5 |
| I felt no concern for people like the writer of the message. | 1 | 2 | 3 | 4 | 5 |
| I felt sympathetic towards the writer of the message. | 1 | 2 | 3 | 4 | 5 |

**Pretest -- Stimuli Messages**

Stimulus 1: Depression topic, low-quality message

when i was first diagnosed with depression i was told dont tell people whats wrong with you by my mother i am embarased & ashamed that i cant do the things you can do b/c of my depresion please dont make it worse by humiliating me & insisting that my struggles are baseless

i didnt choose to feel this way i can call in sick when i have the flu when my physical diseases are flaring up but never when im so effected by my depression that it hurts how is that fair?!

i have felt this stigma over & over again one of my friends was really surprised that it would be something that effected me she thought someone whod achieved as much as me couldnt have depression i had to explain to her that there isnt a single type of person who goes through depresion it can effect anyone

i lost my job despite having a good perfermance record when my boss found out i was diagnosed with depression some of my other friends suddenly acted like i would break down & cry at any minute just because i have depression doesnt mean im not me anymore

this kind of reaction kept me from seeking treatment for a long time i was too scared & ashamed to get the help i needed but once i finally soght treatment i learned how to manage my depression & im living a better life with the help of my doctors

we all need to work together so that individuals get the right support & arent shunned just b/c of their problems w/ depression spread the word and stop the stigma


Stimulus 2: Depression topic, high-quality message

When I was first diagnosed with depression I was told "don't tell people what's wrong with you" by my mother. I am embarrassed and ashamed that I cannot do the things you can do because of my depression. Please don't make it worse by humiliating me and insisting that my struggles are baseless.

I didn't choose to feel this way. I can call in sick when I have the flu, when my physical diseases are flaring up, but never when I'm so affected by my depression that it hurts. How is that fair?

I have felt this stigma over and over again. One of my friends was really surprised that it would be something that affected me. She thought someone who'd achieved as much as me couldn't have experienced depression. I had to explain to her that there isn't a single type of person who goes through depression – it can affect anyone.

I lost my job – despite having a good performance record – when my boss found out I was diagnosed with depression. Some of my other friends suddenly acted like I would break down and cry at any minute. Just because I have depression doesn't mean I'm not me anymore.

This kind of reaction kept me from seeking treatment for a long time. I was too scared and ashamed to get the help I needed. But once I finally sought treatment I learned how to manage my depression and I'm living a better life with the help of my doctors.

We all need to work together, so that individuals get the right support and aren't shunned just because of their problems with depression. Spread the word and stop the stigma.

Stimulus 3: Mental illness topic, low-quality message

chances are you know someone with a mental illness but you may not know who it is i have a mental illness & few of my friends know about it b/c im afraid of what theyll think

theres alot of stigma about mental illness you might think people w/ mental illneses are lazy or could get better if they tried i have a mental illness & its not that easy you cant just get over it or stop feeling this way overnight mental illness is not a choice its an illness

i have experienced the negative impact of stigma in my life i lost my job just for having a diegnosis couldnt get a lease at an apartment i wanted & lost friends simply because i have a mental illness

i felt guilty & ashamed i started to believe that i was a bad person & that i wasnt good enough for anything i didnt seek help or go to a docter for my mental illness b/c of the stigma but i finally sought treatment & i learned how to manage my illness & im living a better life

mental illness is treatable but no one benefits from stigma spread the word & stop the stigma

Stimulus 4: Mental illness topic, high-quality message

Chances are you know someone with a mental illness, but you may not know who it is. I have a mental illness and few of my friends know about it because I'm afraid of what they'll think.

There's a lot of stigma about mental illness. You might think people with mental illnesses are lazy or could get better if they tried. I have a mental illness and it's not that easy. You

can't just get over it or stop feeling this way overnight. Mental illness is not a choice – it's an illness.

I have experienced the negative impact of stigma in my life. I lost my job just for having a diagnosis, couldn't get a lease at an apartment I wanted, and lost friends simply because I have a mental illness.

I felt guilty and ashamed. I started to believe that I was a bad person and that I wasn't good enough for anything. I didn't seek help or go to a doctor for my mental illness because of the stigma. But I finally sought treatment and I learned how to manage my illness and I'm living a better life.

Mental illness is treatable, but no one benefits from stigma. Spread the word and stop the stigma.


Stimulus 5: Bipolar disorder topic, low-quality message

when i was first diagnosed with bipolar disorder i was told dont tell people whats wrong with you by my mother i am embarased & ashamed that i cant do the things you can do b/c of my depresion please dont make it worse by humiliating me & insisting that my struggles are baseless

i didnt choose to feel this way i can call in sick when i have the flu when my physical diseases are flaring up but never when im so effected by my bipolar disoder that it hurts how is that fair?!

i have felt this stigma over & over again one of my friends was really surprised that it would be something that effected me she thought someone whod achieved as much as me couldnt be bipolar i had to explain to her that there isnt a single type of person who goes through this it can effect anyone

i lost my job despite having a good perfermance record when my boss found out i was diagnosed with bipolar disorder some of my other friends suddenly acted like i would strike out at them at any minute just because im bipolar doesnt mean im a violent person

this kind of reaction kept me from seeking treatment for a long time i was too scared & ashamed to get the help i needed but once i finally soght treatment i learned how to manage my bipolar disorder & im living a better life with the help of my doctors

we all need to work together so that individuals get the right support & arent shunned just b/c of their problems w/ bipolar disorder spread the word and stop the stigma

Stimulus 6: Bipolar disorder topic, high-quality message


When I was first diagnosed with bipolar disorder I was told "don't tell people what's wrong with you" by my mother. I am embarrassed and ashamed that I cannot do the things you can do because I'm bipolar. Please don't make it worse by humiliating me and insisting that my struggles are baseless.

I didn't choose to feel this way. I can call in sick when I have the flu, when my physical diseases are flaring up, but never when I'm so affected by my bipolar disorder that it hurts. How is that fair?

I have felt this stigma over and over again. One of my friends was really surprised that it would be something that affected me. She thought someone who'd achieved as much as me couldn't be bipolar. I had to explain to her that there isn't a single type of person who goes through this – it can affect anyone.

I lost my job – despite having a good performance record  – when my boss found out I was diagnosed with bipolar disorder. Some of my other friends suddenly acted like I would strike out at them at any minute. Just because I'm bipolar doesn't mean I'm a violent person.

This kind of reaction kept me from seeking treatment for a long time. I was too scared and ashamed to get the help I needed. But once I finally sought treatment I learned how to manage my bipolar disorder and I'm living a better life with the help of my doctors.

We all need to work together, so that individuals get the right support and aren't shunned just because of their problems with bipolar disorder. Spread the word and stop the stigma.

## Appendix F: Pilot Study -- Consent Letter

This is a research study. We are inviting you to participate in this research study because you are an adult living in the U.S. who is older than 18 years of age and regularly uses social media.

The purpose of this research study is to understand how people respond to social media messages about mental illness. We are only interested in your opinions, and there are no right answers to the questions we will ask.

Approximately 300 people will take part in this portion of the study at the University of Iowa.

If you agree to participate, we would like you to take as much time as you need to complete this online survey. First, you will answer a few questions about yourself and your experiences with mental illness. Then, you will view a message and answer questions about its quality and your opinions about it. Next, we will ask a few questions about your beliefs about mental illness. These questions have no right answer. You are free to skip answers at any time or stop the study. We are interested in your opinion and it is important to be honest about how you feel about the message and the topic. Once you finish the last set of questions, you will hit next and be given debriefing information. It should take you about 30 minutes to complete the survey.

We will keep the information you provide confidential, however federal regulatory agencies and the University of Iowa Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research. Your answers to this study are not connected to any identifiable information (it will be anonymous). If we write a report about this study we will do so in such a way that you cannot be identified.

This study is about mental illness messages. You may experience emotional or psychological distress as a result of the message content or your own experiences with this topic. These messages might make you feel uncomfortable or trigger unpleasant memories or thoughts. Other than this, there are no known risks from being in this study, and you will not benefit personally.  However we hope that others may benefit in the future from what we learn as a result of this study.

You will not have any costs for being in this research study.

You will be paid for being in this research study. You will be given $0.25 for participation in this study. Payment will be given once you complete the study using the Amazon Mechanical Turk payment system.

Taking part in this research study is completely voluntary.  If you decide not to be in this study, or if you stop participating at any time, you won't be penalized or lose any benefits for which you otherwise qualify.

If you have any questions about the research study itself, please contact Stephanie Miles, 817-271-0763. If you experience a research-related injury, please contact: Rachel Young, 319-335-3352. If you have questions about the rights of research subjects, please contact the Human Subjects Office, 105 Hardin Library for the Health Sciences, 600 Newton Rd, The University of Iowa, Iowa City, IA  52242-1098, (319) 335-6564, or e-mail irb@uiowa.edu. To offer input about your experiences as a research subject or to speak to someone other than the research staff, call the Human Subjects Office at the number above.

Thank you very much for your participation.

# Appendix G: Pilot Study -- Debrief

Thank you for participating in this research study. The purpose of the study was to understand how individuals respond to messages about mental illness.

This project will contribute to research aimed at reducing mental illness stigma. Thank you for your participation.

If this study produced mental health concerns for you or someone you know, it's important to know that help is available. The following national resources are available free of charge for anyone seeking help:

**National Alliance on Mental Illness (NAMI)**
Website: https://www.nami.org/Find-Support
Email: mailto:info@nami.org
HelpLine: 1-800-950-NAMI (6264)
(Available Monday-Friday, 10 am-6 pm Eastern Time)

This helpline specializes in answering questions about:
· Symptoms of mental illness
· Treatment options
· Local support groups and services
· Education programs
· Helping family members get treatment
· Programs to help find jobs

**Substance Abuse and Mental Health Services Administration (SAMSHA)**
Website: http://www.samhsa.gov/find-help
HelpLine: 1-800-662-HELP (4357)
(Available 24-hours a day, 7 days a week)

This helpline specializes in:
· Mental illness treatment information
· Referral to local services
· Information about mental health disorders

# Appendix H: Experiment One -- Stimuli Messages

## Perspective-taking Instructions

Next, you will view a social media message about one of the health topics you were asked about. **Please pay close attention to how the person who wrote the message feels**. It would be helpful if you imagine what it is like to be that person. Click next when you are ready to view the message.

## Objectivity Instructions

Next, you will view a social media message about one of the health topics you were asked about. Please try to be objective and pay close attention to the facts presented in the message. Click next when you are ready to view the message.

## High-Quality Bipolar Message
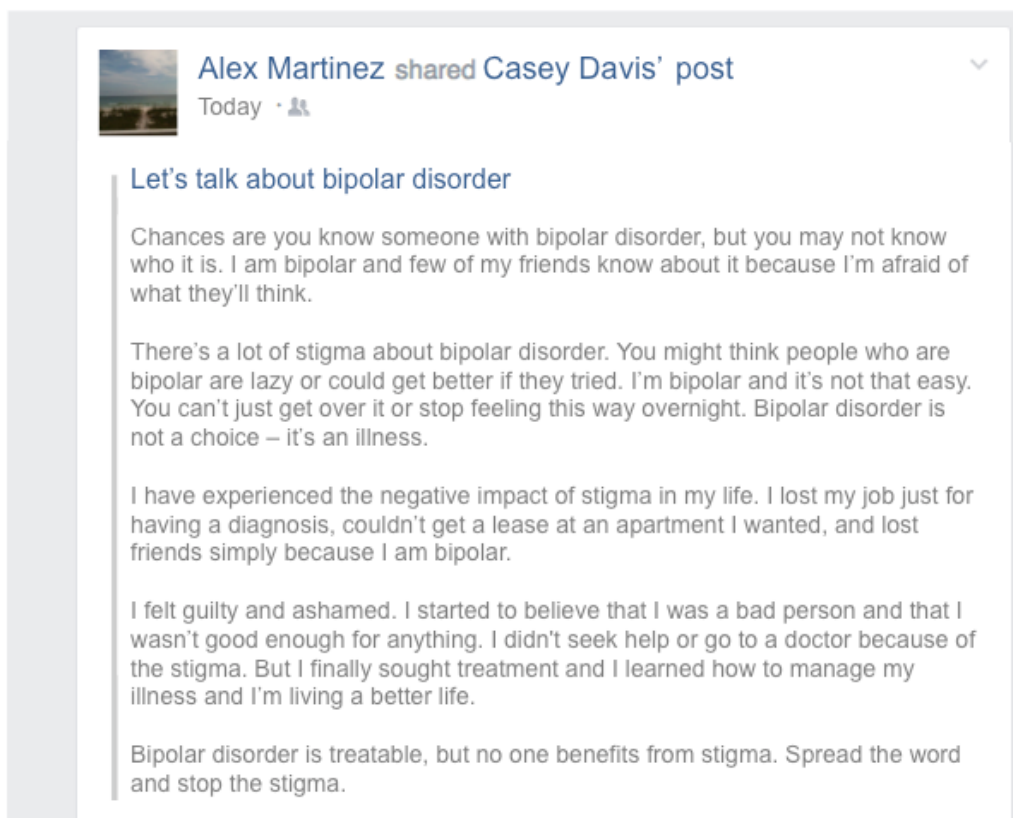
**Low-Quality Bipolar Message**

Alex Martinez shared Casey Davis' post
Today ·

lets talk about bipolar disorder

chances are you know someone with bipolar disorder but you may not know who it is i am bipolar & few of my friends know about it b/c im afraid of what theyll think

theres alot of stigma about bipolar disorder you might think people who are bipolor are lazy or could get better if they tried im bipolar & its not that easy you cant just get over it or stop feeling this way overnight bipolar disorder is not a choice its an illness

i have experienced the negative impact of stigma in my life i lost my job just for having a diegnosis couldnt get a lease at an apartment i wanted & lost friends simply because im bipolar

i felt guilty & ashamed i started to believe that i was a bad person & that i wasnt good enough for anything i didnt seek help or go to a docter b/c of the stigma but i finally sought treatment & i learned how to manage my illness & im living a better life

bipolar disorder is treatable but no one benefits from stigma spread the word & stop the stigma

**High-Quality Depression Message**

Jordan Jones shared Taylor William's post
Today

## Let's talk about depression

When I was first diagnosed with depression I was told "don't tell people what's wrong with you" by my mother. I am embarrassed and ashamed that I cannot do the things you can do because of my depression. Please don't make it worse by humiliating me and insisting that my struggles are baseless.

I didn't choose to feel this way. I can call in sick when I have the flu, when my physical diseases are flaring up, but never when I'm so affected by my depression that it hurts. How is that fair?

I have felt this stigma over and over again. One of my friends was really surprised that it would be something that affected me. She thought someone who'd achieved as much as me couldn't have experienced depression. I had to explain to her that there isn't a single type of person who goes through depression – it can affect anyone.

I lost my job – despite having a good performance record – when my boss found out I was diagnosed with depression. Some of my other friends suddenly acted like I would break down and cry at any minute. Just because I have depression doesn't mean I'm not me anymore.

This kind of reaction kept me from seeking treatment for a long time. I was too scared and ashamed to get the help I needed. But once I finally sought treatment I learned how to manage my depression and I'm living a better life with the help of my doctors.

We all need to work together, so that individuals get the right support and aren't shunned just because of their problems with depression. Spread the word and stop the stigma.

**Low-Quality Depression Message**



Jordan Jones shared Taylor William's post
Today

**lets talk about depression**

when i was first diagnosed with depression i was told dont tell people whats wrong with you by my mother i am embarased & ashamed that i cant do the things you can do b/c of my depresion please dont make it worse by humiliating me & insisting that my struggles are baseless

i didnt choose to feel this way i can call in sick when i have the flu when my physical diseases are flaring up but never when im so effected by my depression that it hurts how is that fair?!

i have felt this stigma over & over again one of my friends was really surprised that it would be something that effected me she thought someone whod achieved as much as me couldnt have depression i had to explain to her that there isnt a single type of person who goes through depresion it can effect anyone

i lost my job despite having a good perfermance record when my boss found out i was diagnosed with depression some of my other friends suddenly acted like i would break down & cry at any minute just because i have depression doesnt mean im not me anymore

this kind of reaction kept me from seeking treatment for a long time i was too scared & ashamed to get the help i needed but once i finally soght treatment i learned how to manage my depression & im living a better life with the help of my doctors

we all need to work together so that individuals get the right support & arent shunned just b/c of their problems w/ depression spread the word and stop the stigma

# Appendix I: Experiment One and Two -- MTurk Recruitment Message

Survey about stigmatized health conditions

**Requester:** Stephanie Miles          **Reward:** $1.00 per HIT          **HITs available:** 0          **Duration:** 1 Hours

**Qualifications Required:** Location is US , HIT Approval Rate (%) for all Requesters' HITs greater than or equal to 95 , Repeat HITs has not been granted

**HIT Preview**

**Instructions**

You'll answer a series of questions about your thoughts on stigmatized health conditions and give your opinions about two social media messages. The survey will take approximately 30 minutes. You must be over 18, fluent in English, and access this HIT from inside the United States.

At the end of the survey, you will receive a code to paste into the box below to receive credit for taking our survey.

**Make sure to leave this window open as you complete the survey.** When you are finished, you will return to this page to paste the code into the box to receive payment. Thank you.

**Survey link:**          https://uiowa.qualtrics.com/SE/?SID=SV_0xOl9jweWiDQd4F

**Provide the survey code here:**   e.g. 123456

**Submit**

# Appendix J: Experiment One -- Pretest Questionnaire

First, we would like to ask you some basic questions about your media use.

How often do you use the media listed below?

| | Several times a day (1) | About once a day (2) | 1-2 days a week (3) | 3-5 days a week (4) | Every few weeks (5) | Less often (6) | Never used (7) |
|---|---|---|---|---|---|---|---|
| Printed newspapers (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Online newspapers (2) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Television (not online or streaming) (3) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Television (streaming or online) (4) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Local news programs (5) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Network news (Ex: ABC Nightly News) (6) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Cable news (Ex: CNN, FoxNews) (7) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Radio or music (not online or streaming) (8) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Radio or music (online or streaming) (9) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| The internet in general (10) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Next, we'd like to ask some questions about your use of social media.
Thinking about the social network sites you use, about how often do you visit or use each site/app listed below?

| | Several times a day (1) | About once a day (2) | 1-2 days a week (3) | 3-5 days a week (4) | Every few weeks (5) | Less often (6) | Never used (7) |
|---|---|---|---|---|---|---|---|
| Twitter (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Facebook (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Instagram (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Pinterest (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| LinkedIn (5) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| YikYak (6) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Snap Chat (7) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Tumblr (8) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Google+ (9) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Vine (10) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| YouTube (11) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Other (12) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Other (13) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

How familiar are you with the topic following health topics?

| | Not at all familiar (1) | Unfamiliar (2) | Neither familiar nor unfamiliar (3) | Familiar (4) | Very familiar (5) |
|---|---|---|---|---|---|
| Obesity or excessive weight (1) | ○ | ○ | ○ | ○ | ○ |
| Mental illness (2) | ○ | ○ | ○ | ○ | ○ |
| Alcohol addiction (3) | ○ | ○ | ○ | ○ | ○ |

Have you or someone you know ever been diagnosed with the following health conditions?

| | Me | | Someone I know (please check all that apply) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Yes (1) | No (2) | Close friend (1) | Acquaint-ance (2) | Close family member (3) | Distant family member (4) | Work or school peer (5) | Partner / Significant Other (6) |
| Obesity or excessive weight (1) | ○ | ○ | ❑ | ❑ | ❑ | ❑ | ❑ | ❑ |
| Mental illness (2) | ○ | ○ | ❑ | ❑ | ❑ | ❑ | ❑ | ❑ |
| Alcohol addiction (3) | ○ | ○ | ❑ | ❑ | ❑ | ❑ | ❑ | ❑ |

We'd like to know your general interest in obesity topics. Please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I make a point to read and watch stories about obesity. (1) | ○ | ○ | ○ | ○ | ○ |
| I enjoy learning about obesity issues. (2) | ○ | ○ | ○ | ○ | ○ |
| To be and stay healthy, it's critical to be informed about obesity issues. (3) | ○ | ○ | ○ | ○ | ○ |
| I need to know about obesity issues so I can keep myself and my family healthy. (4) | ○ | ○ | ○ | ○ | ○ |
| When I see a story about obesity, I usually skip it. (5) | ○ | ○ | ○ | ○ | ○ |
| I'm not really interested in obesity topics. (6) | ○ | ○ | ○ | ○ | ○ |

We'd like to know your general interest in mental illness topics. Please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I make a point to read and watch stories about mental health. (1) | ○ | ○ | ○ | ○ | ○ |
| I enjoy learning about mental health issues. (2) | ○ | ○ | ○ | ○ | ○ |
| To be and stay healthy, it's critical to be informed about mental health issues. (3) | ○ | ○ | ○ | ○ | ○ |
| This is an attention check. To verify that you are taking this survey with care, please answer this question with neutral. (7) | ○ | ○ | ○ | ○ | ○ |
| I need to know about mental health issues so I can keep myself and my family healthy. (4) | ○ | ○ | ○ | ○ | ○ |
| When I see a story about mental health, I usually skip it. (5) | ○ | ○ | ○ | ○ | ○ |
| I'm not really interested in mental health topics. (6) | ○ | ○ | ○ | ○ | ○ |

We'd like to know your general interest in alcoholism topics. Please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I make a point to read and watch stories about alcoholism. (1) | ○ | ○ | ○ | ○ | ○ |
| I enjoy learning about alcohol abuse. (2) | ○ | ○ | ○ | ○ | ○ |
| To be and stay healthy, it's critical to be informed about alcohol issues. (3) | ○ | ○ | ○ | ○ | ○ |
| I need to know about alcohol issues so I can keep myself and my family healthy. (4) | ○ | ○ | ○ | ○ | ○ |
| When I see a story about alcoholism, I usually skip it. (5) | ○ | ○ | ○ | ○ | ○ |
| I'm not really interested in alcohol topics. (6) | ○ | ○ | ○ | ○ | ○ |

Next, we'd like to know your current attitudes about people with certain health conditions. There are no right or wrong answers to these questions. We are looking for your honest opinion. Please indicate your level of agreement with the following statements about people with mental illness.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I feel unsafe around people with mental illness. (1) | ○ | ○ | ○ | ○ | ○ |
| People with mental illness can recover if they get the right treatment. (2) | ○ | ○ | ○ | ○ | ○ |
| The cause of a person's mental illness is completely under his or her control. (3) | ○ | ○ | ○ | ○ | ○ |
| I think persons with mental illness pose a risk to other people. (4) | ○ | ○ | ○ | ○ | ○ |
| Our society should do more to protect people with mental illness. (5) | ○ | ○ | ○ | ○ | ○ |
| People with mental illness scare me. (6) | ○ | ○ | ○ | ○ | ○ |
| This is an attention check. To verify that you are taking this survey with care, please answer this question with agree. (13) | ○ | ○ | ○ | ○ | ○ |
| I pity people who have a mental illness. (7) | ○ | ○ | ○ | ○ | ○ |
| I have sympathy for mentally ill individuals. (8) | ○ | ○ | ○ | ○ | ○ |
| I don't think people with mental illness are any more dangerous than the average person. (9) | ○ | ○ | ○ | ○ | ○ |
| If someone has a mental illness, it is his or her own fault. (10) | ○ | ○ | ○ | ○ | ○ |
| I would help a person with a mental illness if asked. (11) | ○ | ○ | ○ | ○ | ○ |
| Most people with mental illness are fully responsible for their condition. (12) | ○ | ○ | ○ | ○ | ○ |

Please rate your willingness to do the following.

| | Very Unwilling (1) | Somewhat Unwilling (2) | Neither Willing nor Unwilling (3) | Somewhat Willing (4) | Very Willing (5) |
|---|---|---|---|---|---|
| Rent a room in your home to or be roommates with someone with a mental illness? (1) | ○ | ○ | ○ | ○ | ○ |
| Work on the same job as someone with a mental illness? (2) | ○ | ○ | ○ | ○ | ○ |
| Have someone with a mental illness as a neighbor? (3) | ○ | ○ | ○ | ○ | ○ |
| Date a person with a mental illness? (4) | ○ | ○ | ○ | ○ | ○ |
| Be friends with a person with a mental illness? (5) | ○ | ○ | ○ | ○ | ○ |
| Leave a child in the care of someone with a mental illness? (6) | ○ | ○ | ○ | ○ | ○ |

Please indicate your level of agreement with the following statements about people who are obese or overweight.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| The cause of a person's obesity is completely under his or her control. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most obese people are not at fault for their condition. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| In most cases, obesity is the result of a biological disorder. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Obesity is rarely caused by a lack of willpower. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I pity people who are obese. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I feel unsafe around obese people. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Obesity is a sign of personal weakness. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I don't think obese individuals are any more dangerous than the average person. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |
| If someone is obese, it is his or her own fault. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I have no sympathy for obese individuals. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would help an obese person if asked. (11) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Obesity is the result of bad habits, not a medical condition. (12) | ❍ | ❍ | ❍ | ❍ | ❍ |

Please rate your willingness to do the following.

| | Very Unwilling (1) | Somewhat Unwilling (2) | Neither Willing nor Unwilling (3) | Somewhat Willing (4) | Very Willing (5) |
|---|---|---|---|---|---|
| Rent a room in your home to or be roommates with someone who is obese? (1) | ○ | ○ | ○ | ○ | ○ |
| Work on the same job as someone who is obese? (2) | ○ | ○ | ○ | ○ | ○ |
| Have someone who is obese as a neighbor? (3) | ○ | ○ | ○ | ○ | ○ |
| Date a person who is obese? (4) | ○ | ○ | ○ | ○ | ○ |
| Be friends with a person who is obese? (5) | ○ | ○ | ○ | ○ | ○ |
| Leave a child in the care of someone who is obese? (6) | ○ | ○ | ○ | ○ | ○ |

Please indicate your level of agreement with the following statements about people who are alcoholic.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Most alcoholics just want to live it up and are irresponsible. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most alcoholics are not at fault for their condition. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Alcoholics should be thought of and treated as sick people. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Alcoholism is rarely caused by a lack of willpower. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I pity people who are alcoholic. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I feel unsafe around alcoholic people. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| This is an attention check. To verify that you are taking this survey with care, please answer this question with agree. (13) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Alcoholism is a sign of personal weakness. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I don't think alcoholics are any more dangerous than the average person. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Alcoholism is a bad habit, not a disease. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I have no sympathy for alcoholic individuals. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I would help an alcoholic person if asked. (11) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Alcoholism shouldn't be treated as a medical disease. (12) | ❍ | ❍ | ❍ | ❍ | ❍ |

Please rate your willingness to do the following.

| | Very Unwilling (1) | Somewhat Unwilling (2) | Neither Willing nor Unwilling (3) | Somewhat Willing (4) | Very Willing (5) |
|---|---|---|---|---|---|
| Rent a room in your home to or be roommates with someone who is alcoholic? (1) | ○ | ○ | ○ | ○ | ○ |
| Work on the same job as someone who is alcoholic? (2) | ○ | ○ | ○ | ○ | ○ |
| Have someone who is alcoholic as a neighbor? (3) | ○ | ○ | ○ | ○ | ○ |
| Date a person who is alcoholic? (4) | ○ | ○ | ○ | ○ | ○ |
| Be friends with a person who is alcoholic? (5) | ○ | ○ | ○ | ○ | ○ |
| Leave a child in the care of someone who is alcoholic? (6) | ○ | ○ | ○ | ○ | ○ |

## Appendix K: Experiment One -- Posttest Questionnaire

**Post-Message Evaluation**

We are interested in what you were thinking about while reading the message. Use the space below to list everything you were thinking while reading the statement.

(text box)

Please indicate your level of agreement with the following statements about the message you just read.

|  | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| The message made its point effectively. (1) | ○ | ○ | ○ | ○ | ○ |
| The message was convincing. (2) | ○ | ○ | ○ | ○ | ○ |
| I liked the message. (3) | ○ | ○ | ○ | ○ | ○ |
| The message was not well written. (4) | ○ | ○ | ○ | ○ | ○ |
| The message was persuasive. (5) | ○ | ○ | ○ | ○ | ○ |
| The message was of poor quality. (6) | ○ | ○ | ○ | ○ | ○ |
| The message was believable. (7) | ○ | ○ | ○ | ○ | ○ |
| The message was easy to understand. (8) | ○ | ○ | ○ | ○ | ○ |
| The message gave strong reasons for supporting individuals with mental illness. (9) | ○ | ○ | ○ | ○ | ○ |

Please indicate your level of agreement with the following statements about what you were doing while reading the message. It's important to be honest with your answers. While reading the message....

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I was not very attentive to the ideas. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was attempting to analyze the issues in the message. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was spending a lot of effort. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was searching my mind in response to the ideas. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was distracted by other thoughts not related to the message. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was reflecting on the implications of the arguments. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |

Please indicate your level of agreement with the following statements about how you were feeling while reading the message.

| | Strongly disagree (1) | Disagree (2) | Neither agree or disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I felt the same feelings expressed by the message writer. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt that I am not much different from the person who wrote the message. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I did not feel emotionally involved. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I wished there was something I could do to solve the problem presented in the message. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| This is an attention check. To verify that you are taking this survey with care, please answer this question with agree. (12) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt I could really identify with what was described in the message. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was moved by the writer's experience. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I thought the message grossly exaggerates the plight of people with mental illness. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt no concern for people like the one who wrote the message. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I could really see how someone could have a bad experience like the one talked about in the message. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I believe the situation described in the message is realistic. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt sympathetic towards the writer of the message. (11) | ❍ | ❍ | ❍ | ❍ | ❍ |

## Overall Posttest

AQ Please indicate your level of agreement with the following statements about people with mental illness.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I feel unsafe around people with mental illness. (1) | ○ | ○ | ○ | ○ | ○ |
| People with mental illness can recover if they get the right treatment. (2) | ○ | ○ | ○ | ○ | ○ |
| The cause of a person's mental illness is completely under his or her control. (3) | ○ | ○ | ○ | ○ | ○ |
| I think persons with mental illness pose a risk to other people. (4) | ○ | ○ | ○ | ○ | ○ |
| Our society should do more to protect people with mental illness. (5) | ○ | ○ | ○ | ○ | ○ |
| People with mental illness scare me. (6) | ○ | ○ | ○ | ○ | ○ |
| I pity people who have a mental illness. (7) | ○ | ○ | ○ | ○ | ○ |
| I have sympathy for mentally ill individuals. (8) | ○ | ○ | ○ | ○ | ○ |
| I don't think people with mental illness are any more dangerous than the average person. (9) | ○ | ○ | ○ | ○ | ○ |
| If someone has a mental illness, it is his or her own fault. (10) | ○ | ○ | ○ | ○ | ○ |
| I would help a person with a mental illness if asked. (11) | ○ | ○ | ○ | ○ | ○ |
| Most people with mental illness are fully responsible for their condition. (12) | ○ | ○ | ○ | ○ | ○ |

SDS Please rate your willingness to do the following.

| | Very unwilling (1) | Somewhat unwilling (2) | Neither willing nor unwilling (3) | Somewhat willing (4) | Very willing (5) |
|---|---|---|---|---|---|
| Rent a room in your home to or be roommates with someone with a mental illness? (1) | ○ | ○ | ○ | ○ | ○ |
| Work on the same job as someone with a mental illness? (2) | ○ | ○ | ○ | ○ | ○ |
| Have someone with a mental illness as a neighbor? (3) | ○ | ○ | ○ | ○ | ○ |
| Date a person with a mental illness? (4) | ○ | ○ | ○ | ○ | ○ |
| Be friends with a person with a mental illness? (5) | ○ | ○ | ○ | ○ | ○ |
| Leave a child in the care of someone with a mental illness? (6) | ○ | ○ | ○ | ○ | ○ |

Age What is your current age?
- ❍ 18-24 (1)
- ❍ 25-34 (2)
- ❍ 35-44 (3)
- ❍ 45-54 (4)
- ❍ 55-65 (5)
- ❍ Over 65 years old (6)

Gender What gender do you most closely identify with?
- ❍ Male (1)
- ❍ Female (2)
- ❍ Other (3) _____
- ❍ Prefer not to answer (4)

Race How do you identify yourself? Check all that apply.
- ❑ White / Caucasian (1)
- ❑ Hispanic or Latino (2)
- ❑ Black or African American (3)
- ❑ Native American or American Indian (4)
- ❑ Asian / Asian American (5)
- ❑ Other (6) _____

Education What is the highest degree or year of school you have completed?
- ❍ Less than high school (1)
- ❍ Some high school (2)
- ❍ High school graduate or equivalent (for example: GED) (3)
- ❍ Some college (4)
- ❍ Associate degree (5)
- ❍ Bachelor's degree (6)
- ❍ Master's degree (7)
- ❍ Doctorate degree (8)
- ❍ Other (9) _____

Employ What is your current employment status?
- ❍ Employed - Full time (1)
- ❍ Employed - Part time (2)
- ❍ Student (not employed) (7)
- ❍ Self-employed (3)
- ❍ Retired (4)
- ❍ Not employed (5)
- ❍ Other (6) _____

Income What is your household income?

- ○ Less than $10,000 (1)
- ○ $10,001 to $19,999 (2)
- ○ $20,000 to $29,999 (3)
- ○ $30,000 to $39,999 (4)
- ○ $40,000 to $49,999 (5)
- ○ $50,000 to $59,999 (6)
- ○ $60,000 to $69,999 (7)
- ○ $70,000 to $79,999 (8)
- ○ $80,000 to $89,999 (9)
- ○ $90,000 to $99,999 (10)
- ○ $100,000 to $149,999 (11)
- ○ $150,000 or more (12)

**Appendix L: Experiment One -- Debrief**

Thank you for participating in this research study. The purpose of the study was to understand how individuals respond to messages about mental illness. Although you were asked questions about obesity and alcoholism, these questions were not the interest of this project.

This project will contribute to research aimed at reducing mental illness stigma. Thank you for your participation.

If this study produced mental health, weight, or alcohol concerns for you or someone you know, it's important to know that help is available. The following national resources are available free of charge for anyone seeking help:

<u>**National Alliance on Mental Illness (NAMI)**</u>
Website: https://www.nami.org/Find-Support
Email: mailto:info@nami.org
HelpLine: 1-800-950-NAMI (6264)
(Available Monday-Friday, 10 am-6 pm Eastern Time)

This helpline specializes in answering questions about:
· Symptoms of mental illness
· Treatment options
· Local support groups and services
· Education programs
· Helping family members get treatment
· Programs to help find jobs

<u>**Substance Abuse and Mental Health Services Administration (SAMSHA)**</u>
Website: http://www.samhsa.gov/find-help
HelpLine: 1-800-662-HELP (4357)
(Available 24-hours a day, 7 days a week)

This helpline specializes in:
· Mental illness treatment information
· Referral to local services
· Information about mental health disorders

<u>**National Alcoholism and Substance Abuse Information Center (NASAIC)**</u>
Website: http://www.addictioncareoptions.com/alcohol-help
HelpLine: 800-784-6776
(Available 24-hours a day, 7 days a week)

This helpline specializes in:

- · Providing resources for substance abuse
- · Connecting you with local help
- · Understanding treatment options


**<u>Obesity Action Coalition (OAC)</u>**
http://www.obesityaction.org/advocacy/support-groups

This organization specializes in:
- · Obesity information
- · Referral to local services
- · Information about support groups

## Appendix M: Experiment Two -- Posttest Questionnaire

**<u>Manipulation Checks</u>**

The following responses are about the message you just read. It is important to be honest and answer these questions truthfully.

Who did you imagine as the person who shared this message?
- ○ A person you are close friends with and trust on social media (1)
- ○ A person you don't know well and don't trust on social media (2)
- ○ No one in particular (3)
- ○ Don't remember (5)
- ○ Other (4) _____

What did the person who shared this message think about it?
- ○ They agreed with the message or liked the message (1)
- ○ They disagreed with the message or disliked the message (2)
- ○ Not sure / couldn't tell (3)
- ○ Don't remember (4)

Did the person who wrote the original message have a mental illness?
- ○ Yes (1)
- ○ No (2)
- ○ Not sure / couldn't tell (3)
- ○ Don't remember (4)

**<u>Thought list</u>**

Now, we would like to know what you thought about the message. These questions have no right answer and we are only interested in your opinion. We are interested in what you were thinking about while reading the message. Use the space below to list everything you were thinking while reading the statement.

(text box)

Please indicate your level of agreement with the following statements about what you were doing while reading the message. While reading the message....

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I was not very attentive to the ideas. (1) | ○ | ○ | ○ | ○ | ○ |
| I was attempting to analyze the issues in the message. (2) | ○ | ○ | ○ | ○ | ○ |
| I was spending a lot of effort. (3) | ○ | ○ | ○ | ○ | ○ |
| I was searching my mind in response to the ideas. (4) | ○ | ○ | ○ | ○ | ○ |
| I was distracted by other thoughts not related to the message. (5) | ○ | ○ | ○ | ○ | ○ |
| I was reflecting on the implications of the arguments. (6) | ○ | ○ | ○ | ○ | ○ |

Eval2 Please indicate your level of agreement with the following statements about the message you just read.

| | Strongly disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| The message made its point effectively. (1) | ○ | ○ | ○ | ○ | ○ |
| The message was convincing. (2) | ○ | ○ | ○ | ○ | ○ |
| I liked the message. (3) | ○ | ○ | ○ | ○ | ○ |
| The message was not well written. (4) | ○ | ○ | ○ | ○ | ○ |
| The message was persuasive. (5) | ○ | ○ | ○ | ○ | ○ |
| The message was of poor quality. (6) | ○ | ○ | ○ | ○ | ○ |
| The message was believable. (7) | ○ | ○ | ○ | ○ | ○ |
| The message was easy to understand. (8) | ○ | ○ | ○ | ○ | ○ |
| The message gave strong reasons for supporting individuals with mental illness. (9) | ○ | ○ | ○ | ○ | ○ |
| This is an attention check. Please answer with agree. (10) | ○ | ○ | ○ | ○ | ○ |

Cred2 Please indicate your agreement with the following statements about the author of the post. The author of this post.....

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| Is trustworthy. (1) | ○ | ○ | ○ | ○ | ○ |
| Has knowledge of the topic. (2) | ○ | ○ | ○ | ○ | ○ |
| Is a lot like me. (6) | ○ | ○ | ○ | ○ | ○ |
| Is credible. (3) | ○ | ○ | ○ | ○ | ○ |
| Doesn't think like me. (7) | ○ | ○ | ○ | ○ | ○ |
| Is believable. (4) | ○ | ○ | ○ | ○ | ○ |
| Is an expert on the topic. (5) | ○ | ○ | ○ | ○ | ○ |
| Behaves like me. (8) | ○ | ○ | ○ | ○ | ○ |
| Is similar to me. (9) | ○ | ○ | ○ | ○ | ○ |

Please indicate your level of agreement with the following statements about how you were feeling while reading the message.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|
| I felt the same feelings expressed by the in the message creator. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt that I am not much different from the person who wrote the message. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I did not feel emotionally involved. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I wished there was something I could do to solve the problem presented in the message. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt I could really identify with what was described in the message. (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was moved by the person's experience. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I thought the message grossly exaggerates the plight of people with mental illness. (7) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt no concern for people like the ones shown in the message. (8) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I could really see how someone could have a bad experience like the one talked about in the message. (9) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I believe the situation described in the message is realistic. (10) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt sympathetic towards the person in the message. (11) | ❍ | ❍ | ❍ | ❍ | ❍ |

## Apomediary Instructions

Close Apomediary Prompt:
Think about someone you follow on social media that you trust and are close friends with. Write a few sentences to describe this person and why you trust content they post on social media. There is no need to mention this person by name.

Distant Acquaintance Prompt:
Think about someone you follow on social media that you don't really know well and who usually posts messages you don't trust much. Write a few sentences to describe this person and why you don't trust content they post on social media. There is no need to mention this person by name.

## Positive Endorsements
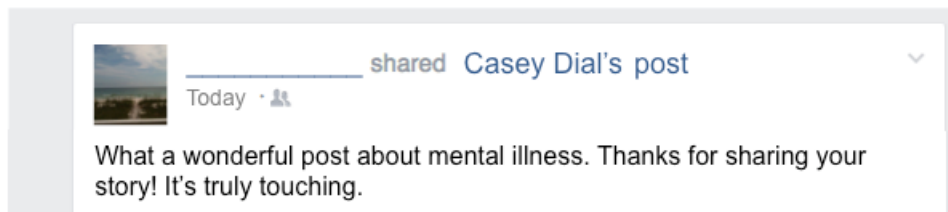
With Bipolar Messages



> _____ shared Casey Dial's post
> Today · 
> What a wonderful post about mental illness. Thanks for sharing your story! It's truly touching.

With Depression Messages



> _____ shared Taylor Murphy's post
> Today · 
> Great points in this post! It's nice to hear from someone who really knows about mental illness.

## Negative Endorsements

### With Bipolar Messages

_____ shared Casey Dial's post
Today ·

How stupid.

### With Depression Messages

_____ shared Taylor Murphy's post
Today ·

Who believes this stuff? Just another loser looking for sympathy.
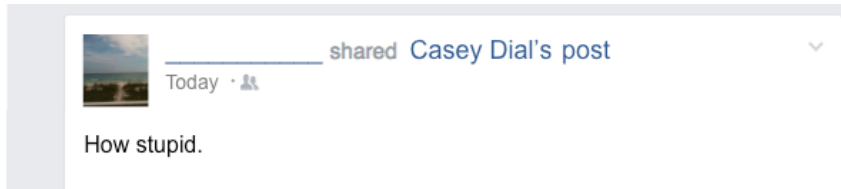
## Mental Illness Disclosure

### Has a Mental Illness

Chances are you know someone with bipolar disorder, but you may not know who it is. I am bipolar and few of my friends know about it because I'm afraid of what they'll think.

There's a lot of stigma about bipolar disorder. You might think people who are bipolar are lazy or could get better if they tried. I'm bipolar and it's not that easy. You can't just get over it or stop feeling this way overnight. Bipolar disorder is not a choice – it's an illness.

### Does not have a Mental Illness

Chances are you know someone with bipolar disorder, but you may not know who it is. People with bipolar disorder don't tell their friends about it because they're afraid of what others will think.

There's a lot of stigma about bipolar disorder. You might think people who are bipolar are lazy or could get better if they tried. It's not that easy. They can't just get over it or stop feeling that way overnight. Bipolar disorder is not a choice – it's an illness.

# Appendix O: Experiment Two -- Summary Statistics for Bipolar Messages

*Table A1. Elaboration Means of Bipolar Messages in Experiment Two (N = 1,604).*

| Message | Quality | Apomediary | Endorsement | Message Creator Mental Illness (MI) | Elaboration Mean | SD | n |
|---|---|---|---|---|---|---|---|
| 17 | High | Close | Positive | MI | 3.70* | .65 | 99 |
| 18 | High | Close | Positive | No MI | 3.71* | .75 | 103 |
| 19 | Low | Close | Positive | MI | 3.73* | .80 | 105 |
| 20 | Low | Close | Positive | No MI | 3.54 | .89 | 102 |
| 21 | High | Distant | Positive | MI | 3.59 | .78 | 109 |
| 22 | High | Distant | Positive | No MI | 3.65 | .82 | 97 |
| 23 | Low | Distant | Positive | MI | 3.57 | .78 | 100 |
| 24 | Low | Distant | Positive | No MI | 3.52 | .81 | 103 |
| 25 | High | Close | Negative | MI | 3.46 | .81 | 104 |
| 26 | High | Close | Negative | No MI | 3.65 | .86 | 95 |
| 27 | Low | Close | Negative | MI | 3.69* | .68 | 101 |
| 28 | Low | Close | Negative | No MI | 3.54 | .81 | 99 |
| 29 | High | Distant | Negative | MI | 3.63 | .78 | 100 |
| 30 | High | Distant | Negative | No MI | 3.55 | .89 | 95 |
| 31 | Low | Distant | Negative | MI | 3.64 | .70 | 101 |
| 32 | Low | Distant | Negative | No MI | 3.58 | .78 | 99 |
| Grand Mean | | | | | 3.55 | .82 | 1,604 |

*Difference between message mean and grand mean is significant, $p < .05$.

*Note:* Elaboration was operationalized on a 5-point scale, where 1 = very low elaboration and 5 = very high elaboration after viewing the mental illness message. One-sample *t*-tests compared each message to the grand mean.

*Table A2. Perceived Argument Quality and Writing Quality Means of Bipolar Messages in Experiment Two.*

| Message | Quality | Apomediary | Endorsement | Message Creator MI | Perceived Argument Quality | | | Perceived Writing Quality | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Mean | *SD* | *n* | Mean | *SD* | *n* |
| 17 | High | Close | Positive | MI | 3.92 | .75 | 99 | 4.01 | .66 | 99 |
| 18 | High | Close | Positive | No MI | 3.84 | .78 | 103 | 3.98 | .70 | 103 |
| 19 | Low | Close | Positive | MI | 3.69* | .98 | 102 | 3.34 | .99 | 102 |
| 20 | Low | Close | Positive | No MI | 3.43 | .91 | 100 | 4.02 | .77 | 100 |
| 21 | High | Distant | Positive | MI | 3.93 | .73 | 109 | 3.21 | 1.09 | 109 |
| 22 | High | Distant | Positive | No MI | 3.90 | .72 | 97 | 3.95 | .60 | 97 |
| 23 | Low | Distant | Positive | MI | 3.53 | .94 | 103 | 3.29 | 1.02 | 103 |
| 24 | Low | Distant | Positive | No MI | 3.19* | 1.04 | 104 | 3.06 | 1.08 | 104 |
| 25 | High | Close | Negative | MI | 3.65 | .90 | 104 | 3.83 | .75 | 104 |
| 26 | High | Close | Negative | No MI | 3.85 | .92 | 95 | 3.84 | .81 | 95 |
| 27 | Low | Close | Negative | MI | 3.63 | .87 | 100 | 3.30 | .88 | 100 |
| 28 | Low | Close | Negative | No MI | 3.51 | .86 | 98 | 3.18 | .91 | 98 |
| 29 | High | Distant | Negative | MI | 3.74 | .82 | 100 | 3.83 | .73 | 100 |
| 30 | High | Distant | Negative | No MI | 3.73 | .91 | 94 | 3.81 | .82 | 94 |
| 31 | Low | Distant | Negative | MI | 3.46 | .93 | 101 | 3.16 | .96 | 101 |
| 32 | Low | Distant | Negative | No MI | 3.50 | .90 | 99 | 3.21 | .94 | 99 |
| High-Quality Message Grand Mean | | | | | 3.80 | .83 | 692 | 3.89 | .73 | 683 |
| Low-Quality Message Grand Mean | | | | | 3.49 | .94 | 807 | 3.22 | .98 | 802 |

*Difference between message mean and grand mean for message quality condition is significant, *p* < .05.

*Note:* Quality was operationalized on a 5-point scale, where 1 = very low quality and 5 = very high quality after viewing the mental illness message. One-sample *t*-tests compared each message to the message quality condition grand mean.

*Table A3. Empathy Means of Bipolar Messages in Experiment Two (N = 1,602).*

| Message | Quality | Apomediary | Endorsement | Message Creator Mental Illness (MI) | Empathy Mean | SD | n |
|---------|---------|-----------|-------------|-------------------------------------|--------------|-----|------|
| 17 | High | Close | Positive | MI | 3.86 | .66 | 98 |
| 18 | High | Close | Positive | No MI | 3.82 | .70 | 103 |
| 19 | Low | Close | Positive | MI | 3.85 | .81 | 104 |
| 20 | Low | Close | Positive | No MI | 3.70 | .75 | 103 |
| 21 | High | Distant | Positive | MI | 3.83 | .77 | 108 |
| 22 | High | Distant | Positive | No MI | 3.89* | .64 | 97 |
| 23 | Low | Distant | Positive | MI | 3.60 | .79 | 100 |
| 24 | Low | Distant | Positive | No MI | 3.32* | .72 | 101 |
| 25 | High | Close | Negative | MI | 3.70 | .82 | 103 |
| 26 | High | Close | Negative | No MI | 3.83 | .79 | 95 |
| 27 | Low | Close | Negative | MI | 3.75 | .71 | 101 |
| 28 | Low | Close | Negative | No MI | 3.65 | .78 | 96 |
| 29 | High | Distant | Negative | MI | 3.67 | .69 | 98 |
| 30 | High | Distant | Negative | No MI | 3.73 | .79 | 96 |
| 31 | Low | Distant | Negative | MI | 3.67 | .80 | 100 |
| 32 | Low | Distant | Negative | No MI | 3.76 | .71 | 99 |
| Grand Mean | | | | | 3.73 | .76 | 1,602 |

*Difference between message mean and grand mean is significant, $p < .05$.

*Note:* Empathy was operationalized on a 5-point scale, where 1 = very low empathy and 5 = very high empathy after viewing the mental illness message. One-sample *t*-tests compared each message to the grand mean.

## Appendix P: Experiment Two -- Summary Statistics for Depression Messages

*Table A4. Elaboration Means of Depression Messages in Experiment Two (N = 1,612).*

| Message | Quality | Apomediary | Endorsement | Message Creator Mental Illness (MI) | Elaboration Mean | SD | n |
|---------|---------|-----------|-------------|-------------------------------------|------|-----|-----|
| 1 | High | Close | Positive | MI | 3.56 | .85 | 99 |
| 2 | High | Close | Positive | No MI | 3.49 | .81 | 99 |
| 3 | Low | Close | Positive | MI | 3.59 | .92 | 102 |
| 4 | Low | Close | Positive | No MI | 3.46 | .77 | 104 |
| 5 | High | Distant | Positive | MI | 3.53 | .77 | 99 |
| 6 | High | Distant | Positive | No MI | 3.60 | .81 | 97 |
| 7 | Low | Distant | Positive | MI | 3.52 | .86 | 100 |
| 8 | Low | Distant | Positive | No MI | 3.53 | .82 | 101 |
| 9 | High | Close | Negative | MI | 3.63 | .89 | 97 |
| 10 | High | Close | Negative | No MI | 3.61 | .83 | 96 |
| 11 | Low | Close | Negative | MI | 3.53 | .87 | 103 |
| 12 | Low | Close | Negative | No MI | 3.80* | .75 | 104 |
| 13 | High | Distant | Negative | MI | 3.58 | .72 | 100 |
| 14 | High | Distant | Negative | No MI | 3.47 | .86 | 97 |
| 15 | Low | Distant | Negative | MI | 3.44* | .76 | 103 |
| 16 | Low | Distant | Negative | No MI | 3.53 | .78 | 103 |
| Grand Mean | | | | | 3.61 | .79 | 1,612 |

*Difference between message mean and grand mean is significant, $p < .05$.

*Note:* Elaboration was operationalized on a 5-point scale, where 1 = very low elaboration and 5 = very high elaboration after viewing the mental illness message. One-sample *t*-tests compared each message to the grand mean.

*Table A5. Perceived Argument Quality and Writing Quality Means of Depression Messages in Experiment Two.*

| Message | Quality | Apomediary | Endorsement | Message Creator MI | Perceived Argument Quality | | | Perceived Writing Quality | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Mean | *SD* | *n* | Mean | *SD* | *n* |
| 1 | High | Close | Positive | MI | 3.82 | .85 | 99 | 3.98 | .76 | 99 |
| 2 | High | Close | Positive | No MI | 3.70 | .85 | 100 | 3.88 | .72 | 100 |
| 3 | Low | Close | Positive | MI | 3.55 | .95 | 101 | 3.23 | .94 | 101 |
| 4 | Low | Close | Positive | No MI | 3.49 | .92 | 105 | 3.27 | .89 | 105 |
| 5 | High | Distant | Positive | MI | 3.73 | .81 | 99 | 3.89 | .79 | 99 |
| 6 | High | Distant | Positive | No MI | 3.77 | .84 | 99 | 3.95 | .70 | 99 |
| 7 | Low | Distant | Positive | MI | 3.65* | .96 | 102 | 3.46* | .94 | 102 |
| 8 | Low | Distant | Positive | No MI | 3.21* | 1.04 | 101 | 3.00* | 1.04 | 101 |
| 9 | High | Close | Negative | MI | 3.85 | .79 | 95 | 3.96 | .73 | 95 |
| 10 | High | Close | Negative | No MI | 3.68 | .94 | 96 | 3.85 | .77 | 96 |
| 11 | Low | Close | Negative | MI | 3.37 | .94 | 103 | 3.13 | .97 | 103 |
| 12 | Low | Close | Negative | No MI | 3.37 | .98 | 104 | 3.14 | 1.05 | 104 |
| 13 | High | Distant | Negative | MI | 3.80 | .81 | 99 | 3.90 | .65 | 99 |
| 14 | High | Distant | Negative | No MI | 3.60 | .85 | 99 | 3.79 | .74 | 99 |
| 15 | Low | Distant | Negative | MI | 3.32 | .97 | 103 | 3.10 | .95 | 103 |
| 16 | Low | Distant | Negative | No MI | 3.41 | .96 | 102 | 3.13 | .98 | 102 |
| High-Quality Message Grand Mean | | | | | 3.74 | .97 | 786 | 3.90 | .73 | 786 |
| Low-Quality Message Grand Mean | | | | | 3.42 | .94 | 821 | 3.18 | .98 | 821 |

*Difference between message mean and grand mean for message quality condition is significant, $p < .05$.

*Note:* Quality was operationalized on a 5-point scale, where 1 = very low quality and 5 = very high quality after viewing the mental illness message. One-sample *t*-tests compared each message to the message quality condition grand mean.

*Table A6. Empathy Means of Depression Messages in Experiment Two (N = 1,607).*

| | | | | | Empathy | | |
|---|---|---|---|---|---|---|---|
| Message | Quality | Apomediary | Endorsement | Message Creator Mental Illness (MI) | Mean | SD | n |
| 1 | High | Close | Positive | MI | 3.74 | .79 | 98 |
| 2 | High | Close | Positive | No MI | 3.75 | .75 | 99 |
| 3 | Low | Close | Positive | MI | 3.68 | .78 | 100 |
| 4 | Low | Close | Positive | No MI | 3.64 | .75 | 105 |
| 5 | High | Distant | Positive | MI | 3.61 | .75 | 100 |
| 6 | High | Distant | Positive | No MI | 3.74 | .70 | 98 |
| 7 | Low | Distant | Positive | MI | 3.64 | .82 | 100 |
| 8 | Low | Distant | Positive | No MI | 3.44* | .79 | 99 |
| 9 | High | Close | Negative | MI | 3.82* | .70 | 98 |
| 10 | High | Close | Negative | No MI | 3.80 | .73 | 96 |
| 11 | Low | Close | Negative | MI | 3.69 | .69 | 104 |
| 12 | Low | Close | Negative | No MI | 3.61 | .74 | 105 |
| 13 | High | Distant | Negative | MI | 3.72 | .69 | 101 |
| 14 | High | Distant | Negative | No MI | 3.59 | .76 | 99 |
| 15 | Low | Distant | Negative | MI | 3.47* | .77 | 102 |
| 16 | Low | Distant | Negative | No MI | 3.64 | .71 | 103 |
| Grand Mean | | | | | 3.66 | .75 | 1,607 |

*Difference between message mean and grand mean is significant, $p < .05$.

*Note:* Empathy was operationalized on a 5-point scale, where 1 = very low empathy and 5 = very high empathy after viewing the mental illness message. One-sample *t*-tests compared each message to the grand mean

## Appendix R: Experiment Two -- Consent Letter

This is a research study. We are inviting you to participate in this research study because you are an adult living in the U.S. who is older than 18 years of age and regularly uses social media.

The purpose of this research study is to understand how people respond to social media messages about mental illness. We are only interested in your opinions, and there are no right answers to the questions we will ask.

Approximately 1,600 people will take part in this portion of the study at the University of Iowa.

If you agree to participate, we would like you to take as much time as you need to complete this online survey. First, you will answer a few questions about yourself and your experiences with mental illness. Then, you will view a message and answer questions about its quality and your opinions about it. Next, we will ask a few questions about your beliefs about mental illness. These questions have no right answer. You are free to skip answers at any time or stop the study. We are interested in your opinion and it is important to be honest about how you feel about the message and the topic. Once you finish the last set of questions, you will hit next and be given debriefing information. It should take you about 30 minutes to complete the survey.

We will keep the information you provide confidential, however federal regulatory agencies and the University of Iowa Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research. We do not collect any personally identifiable information about you, and your answers to this study will be anonymous. If we write a report about this study we will do so in such a way that you cannot be identified.

This study is about mental illness messages. You may experience emotional or psychological distress as a result of the message content or your own experiences with this topic. These messages might make you feel uncomfortable or trigger unpleasant memories or thoughts. Other than this, there are no known risks from being in this study, and you will not benefit personally. However we hope that others may benefit in the future from what we learn as a result of this study.

You will not have any costs for being in this research study.

You will be paid for being in this research study. You will be given $0.25 for participation in this study. Payment will be given once you complete the study using the Amazon Mechanical Turk payment system.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you stop participating at any time, you won't be penalized or lose any benefits for which you otherwise qualify.

If you have any questions about the research study itself, please contact Stephanie Miles, 817-271-0763. If you experience a research-related injury, please contact: Rachel Young, 319-335-3352. If you have questions about the rights of research subjects, please contact the Human Subjects Office, 105 Hardin Library for the Health Sciences, 600 Newton Rd, The University of Iowa, Iowa City, IA  52242-1098, (319) 335-6564, or e-mail irb@uiowa.edu. To offer input about your experiences as a research subject or to speak to someone other than the research staff, call the Human Subjects Office at the number above.

Thank you very much for your participation.

**Appendix S: Experiment Two -- Posttest Measures for the Pretest**

Next, you will view instructions for a short writing exercise. Then, you will answer questions about the quality of the instructions.

Instructions: Think about someone you follow on social media that you trust and are close friends with. Write a few sentences to describe this person and why you trust content they post on social media.

Please indicate your level of agreement with the following statements about the instructions you just read.

| | Strongly disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The instructions were easy to understand. | ○ | ○ | ○ | ○ | ○ |
| The instructions were simple. | ○ | ○ | ○ | ○ | ○ |
| The instructions did not give me enough information to complete the task. | ○ | ○ | ○ | ○ | ○ |
| The instructions were confusing. | ○ | ○ | ○ | ○ | ○ |
| The instructions were clear. | ○ | ○ | ○ | ○ | ○ |

Do you have any suggestions for making the instructions easier to follow?

Next, you will view instructions for a short writing exercise. Then, you will answer questions about the quality of the instructions.

Instructions: Think about someone you follow on social media that you don't really know well and who usually posts messages you don't trust much. Write a few sentences to describe this person and why you don't trust content they post on social media.

Now, we'd like your opinions on a few comments. These comments represent what a person added to a post when they shared it on a social media page. We want to know how you interpret the comment and if it shows that person agrees or disagrees with the post they shared. The post topic is mental illness, but it is not important to know the content of the post. You will only view the comment a person provided with their share of the post. Please click the next button when you are ready to view the comments.

**Evaluations for each message tested**

Please indicate your level of agreement with the following statements about the comment you just read.

|  | Strongly disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| This comment agrees with the post it refers to. | ○ | ○ | ○ | ○ | ○ |
| This comment is favorable. | ○ | ○ | ○ | ○ | ○ |
| The commenter liked the post. | ○ | ○ | ○ | ○ | ○ |
| The comment is easy to understand. | ○ | ○ | ○ | ○ | ○ |
| The comment is negative. | ○ | ○ | ○ | ○ | ○ |

What year were you born?
(Drop down menu)

What gender do you most closely identify with?
○ Male
○ Female
○ Other _____
○ Prefer not to answer

How do you identify yourself? Check all that apply.
❑ White / Caucasian
❑ Hispanic or Latino
❑ Black or African American
❑ Native American or American Indian
❑ Asian / Asian American
❑ Other _____

What is the highest degree or year of school you have completed?
- ○ Less than high school
- ○ Some high school
- ○ High school graduate or equivalent (for example: GED)
- ○ Some college
- ○ Associate degree
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctorate degree
- ○ Other _____

What is your current employment status?
- ○ Employed - Full time
- ○ Employed - Part time
- ○ Student (not employed)
- ○ Self-employed
- ○ Retired
- ○ Not employed
- ○ Other _____

What is your annual household income in U.S. dollars?
- ○ $0 - $25,000
- ○ $25,001 - $50,000
- ○ $50,001 - $75,000
- ○ $75,001 - $100,000
- ○ $100,001 - $125,000
- ○ $125,001 - $150,000
- ○ $150,001 - $175,000
- ○ $175,001 - $200,000
- ○ $200,001+