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DESIGNING SOCIAL MEDIA MESSAGES TO PROMOTE ACTION BY SUICIDE GATEKEEPERS

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Abstract

The act of suicide is a tragic and yet prevalent occurrence in the U.S. younger population. Suicide prevention professionals and programs have focused on reaching not only individuals with suicide ideation, but also family, friends, and other acquaintances, who can be referred to as suicide gatekeepers. Social media provide platforms where health communicators can reach a large population. This research focuses on examining and testing the most effective message framing and wording of social media messages for positively influencing suicide gatekeeper intervention behavior on behalf of a friend or peer. The study first used the grounded theory method to collect and analyze data from suicide prevention specialists and online suicide prevention sources targeted to suicide gatekeepers. This research suggests that suicide gatekeepers need to detect suicide, engage suicidal peers in conversation, and connect suicidal peers with resources. In order to motivate suicide gatekeepers, social media messages should debunk current misconceptions with the constructs of significance of suicide threat, preventability of suicide through intervention, and beneficence of discussing suicide with those who have suicide ideation. In addition, message framing of empathy appeals may positively affect suicide gatekeeper state empathy and behavioral expectation.

The second part of this study used an experiment to test the influence of message construct (between subjects) and message frame (within subjects). Using four messages per participant (two gain-framed and two-loss framed), the survey randomized the 1,285 survey participants between the ages of 18 and 34 on two college campuses into the three message construct conditions (significance, preventability, and beneficence). The experiment found that gain-framed messages have a more positive influence on all the message outcome variables compared with loss-framed messages (perceived message effectiveness, self-efficacy, response

efficacy, empathy, likelihood of social media message engagement, and behavioral expectation), and empathy mediates the relationship between gain- and loss-framed messages and behavioral expectation. Message construct condition and other mediation results were less substantial, although some evidence suggests that the significance message construct may have some advantages for social media messages designed for suicide gatekeepers. Limitations and areas for future study are discussed.

Chapter 1: Research Problem, Rationale, & Purpose

Statement of the Problem: Suicide Prevention in the New Digital Sphere

Anyone who has experienced the loss of someone due to suicide may understand how tragic the event can be. Suicide is defined as a "death caused by self-directed injurious behavior with intent to die as a result of the behavior" (National Institute of Mental Health, 2021, para. 2). Suicide has a devastating impact on the family and friends of people who take their lives, yet research on the biology of suicide did not begin to flourish until the 1990s (National Institutes of Health, 2012). We now know that effective suicide prevention strategies include recognizing the warning signs and taking action on behalf of the person who is thinking about taking his or her life. (National Institutes of Health, 2012).

Suicide in the younger population is not an uncommon or new threat. Suicide rates increased between 2000 and 2018, and in 2019, suicide was the 10th leading cause of death for the U.S. population, claiming the lives of more than 47,000 people (Centers for Disease Control and Prevention, 2022; Hedegaard et al., 2021). The same data show that for the younger population ages 10 to 34, suicide was the second leading cause of death. Moreover, these statistics came before the full psychological impact of the pandemic; that is, over the past three years, young adults have faced the unprecedented situation that the COVID-19 pandemic has presented our global population. One of the results of this experience is profound psychological and social effects, including fear and anxiety over contagion, as well as social isolation; often, these feelings may result in suicide ideation (Sher, 2020).

How do we both as individuals and as a society prevent suicide? Reaching out to those with suicide ideation and changing thoughts and behavior can be a challenge. Intervention is key for preventing suicide, and that includes empowering individuals to recognize signs and ask

direct questions of friends and family that include “Are you thinking of harming yourself?” (National Institutes for Health, 2012). But how can people become more aware of the threat of suicide in the first place? Public health campaigns have been used across the globe for suicide awareness and prevention, and these programs have led to only a modest increase in suicide awareness; moreover, these programs do not always use theoretical foundations when they are implemented or evaluated, which can lead to less effective results and inconsistency across programs (Dumesnil & Verger, 2009). On the other hand, suicide prevention programs in schools have been shown to be especially effective in increasing awareness and self-efficacy in regard to help-seeking behaviors for adolescents (King et al., 2011). Although schools provide an excellent location for suicide awareness training, laws to implement programs remain inconsistent across states, and many of these programs are for educators, not peers (Navigate 360, 2022).

The question then becomes, “How can we reach peers and encourage them to be vigilant and aware of suicide?” An area where more young people continue to spend a great deal of time is on the internet, with 99% of youth ages 15 to 24 years in developed countries using the internet in 2020 (International Telecommunication Union, 2022). This provides the possibility of reaching young people through digital platforms. But studies on the use of digital media in public health promotion remain limited, with much of the research focused on passive message reception and content analyses and lacking a focus on message receiver participation and empowerment; in addition, researchers have raised questions on whether social media function in a more harmful or helpful manner in promoting health, especially in light of the misinformation spread during the pandemic (Carlyle et al., 2018; Clar et al., 2014; Schillinger et al., 2020). Yet,

social media cannot be overlooked as perhaps some of the most influential and cost-effective public health campaign tools, as discussed in the next section.

The Emergence of Social Media

Social media platforms emerged in the late 1990s and have come to be an online gathering place for individuals to connect and share information (Whiting & Williams, 2013). Social media provide effective platforms for health communicators to reach an engaged audience (Jane et al., 2018). Young people are using social media on a daily basis, with 84% of the U.S. population ages 18-29 using at least one social media platform in 2020 (Pew Research Center, 2021a). In addition, this trend may only grow; a recent report from the American Academy of Child and Adolescent Psychiatry (2018) reports that 90% of teens ages 13-17 have used social media, and 75% have a social media profile. Because of the digital migration caused by the pandemic, these numbers may yet increase (Baig et al., 2020).

Social media platforms have the opportunity to open up "new perspectives to the promotion of access to care" (Notredame et al., 2018, p. 3). Recently, researchers have urged the use of social media campaigns to promote mental health and reduce the distress from the pandemic (Sher, 2020). Conversely, researchers have expressed concern over possible contagion effects of suicide social media posts, and the majority of posts featuring suicide on a platform such as Instagram come from individual accounts, not health professionals (Carlyle et al., 2018). Therefore, although a need may exist for health communication professionals to reach those with suicide ideation through social media posts, identifying the best way to reach a particular population introduces challenges. While a minority of young people with suicidal thoughts seek suicide prevention services, many do reach out to their social networks (Michelmore & Hindley, 2012). This fits with research suggesting that most young people with suicide ideation will seek

help from family and friends rather than professional resources or services (Curtis, 2010). Therefore, suicide prevention professionals face a complex situation; they can use social media platforms to reach young people, but their messages may be ignored by a person with suicidal thoughts.

That means concerns about social media's usefulness in suicide prevention entails two outstanding questions: 1) how can suicide prevention personnel effectively use social media platforms to prevent suicide (rather than provide an online gathering place that could potentially facilitate more harm than good); and 2) what type of messages would be useful in promoting preventative behaviors, especially due to their necessary brevity (Gligorić et al., 2018)? The answers may come from thinking differently about the audience, and possibly shifting more efforts to those who stand in the gap: suicide gatekeepers.

Suicide Gatekeepers

Suicide ideation is a term that refers to considering, thinking about, or planning suicide (National Institute of Mental Health, 2021). As previously discussed, suicide intervention by family members and friends of those with suicide ideation may be key in prevention (National Institutes of Health, 2012). While the majority of young people with suicide ideation do not seek professional help or services and prefer their social networks, young people do indicate that it is easier to seek help for others rather than for themselves (Curtis, 2010; Michelmore & Hindley, 2012).

Suicide gatekeepers are individuals who may be able to identify peers or acquaintances with suicide ideation; these gatekeepers are then able to direct those with suicidal thoughts toward helpful resources (Terpstra et al., 2018). Community gatekeepers may include "teachers, youth workers, coaches, and others who have regular, typically 'non-clinical contact' with

youth" (Wexler et al., 2015, p. 206); the key is ongoing proximity that allows a person to identify signs of "depression and suicide risk" (Wexler et al., 2015, p. 206). Gatekeeper training has been conducted for various professional disciplines, and this training provides knowledge and support to people who may not know how to respond to a peer's suicidal comments or behaviors (Dumesnil & Verger, 2009). This suggests a lack of self-efficacy, or the idea that individuals do not think they will be successful when performing a task such as a helping behavior (King et al., 2011). Suicide gatekeeper training has met mixed results, and more emphasis on culturally appropriate training and paying attention to misconceptions that inhibit gatekeeper training are key (Wexler et al., 2015).

This presents researchers and practitioners an opportunity. If a specific type of message reaches the right person and promotes self-efficacy, then that individual could feel not only motivated by, but *capable* of, reaching out to or intervening on behalf of a peer. This is where the idea of message framing and strategic wording emerges.

Theoretical Framework

Message framing in health promotion can be tied to behavior through empirical study (Shen & Diller, 2007). Message framing includes designing a message with a gain frame or a loss frame (O'Keefe & Jensen, 2007).

- Gain frame: You will receive this desirable outcome/avoid an undesirable outcome if you perform this beneficial action/don't perform this harmful action.
- Loss frame: You will lose this desirable outcome/receive an undesirable outcome if you perform this harmful action/don't perform this beneficial action.

Studies showing the value of message framing in the area of gain and loss message frames for health promotion include research conducted with messages promoting flu vaccines

and smoking cessation (Kelly & Hornik, 2016; Kim & Kim, 2016). Those who want to educate the public on health-related matters need to understand message framing and how it promotes behavioral intention and behavior change (Dorfman et al., 2005). Recent literature on framing shows small effect sizes for messages with gain or loss frames, with researchers warning that care should be taken in the exact wording of framed messages that considers the focus of the message, whether it aims to motivate preventative behaviors or encourage people to stop harmful behaviors (O'Keefe & Jensen, 2007, 2009).

Further, the possibility of using constructs from the health belief model in health messages may be influential; the health belief model was first developed in the 1950s and has been used to study the process of promoting and motivating health behaviors (Green et al., 2020). Health belief model constructs that have been studied at length include (but are not limited to) self-efficacy, perceived benefits versus perceived barriers, perceived threat, and cues to action, which may affect the likelihood of engaging in a health promoting behavior (Fishbein & Cappella, 2006; Glanz et al., 2008; Rosenstock, 1988). Carefully crafting the words of a message and paying attention to these details when designing the sentences may result in maximum effect and benefits for the message recipients (Klimes-Dougan et al., 2016).

Social media health-related messages have become an area of study, especially when it comes to user engagement with these messages, which refers to the liking, sharing, or commenting on a social media post (Guidry et al., 2014; Rus & Cameron, 2016; Streklova & Damiani, 2016). In fact, social media engagement may increase when messages use theoretical concepts from models that provide antecedents of behavioral expectation and behavior, such as the health belief model and theory of planned behavior (Cox, 2020; Guidry et al., 2020). Message engagement behavior may not necessarily lead to performing or not performing a health

behavior or changes in health behavior, and studies have yet to link these behaviors; however, questionnaires following exposure to social media messages can provide knowledge on people's attitudes and behavioral intention (Korda & Itani, 2013).

Ultimately, effective message framing and using theoretical constructs to create the text for social media messages intended to reach suicide gatekeepers may increase behavioral intention, as well as perceptions of behavioral efficacy and self-efficacy, when it comes to the action of intervening on behalf of a peer with suicide ideation (Cox, 2021). This area of research continues to provide an opportunity to explore the intersection of traditional message framing and the need for theoretical concepts and constructs to design appropriate messages for suicide intervention.

Research Purpose

The purpose of this research is two-fold. First, the research seeks to understand how suicide prevention professionals make decisions about how to reach and motivate peers to intercede on behalf of a suicidal friend or acquaintance. In analyzing this process, it aims to build a model for social media message design for suicide gatekeepers. Secondly, the research aims to test messages through an online experimental design in order to better determine what aspects of this model are most influential in the message design process on behavioral expectation, self-efficacy, and response efficacy.

Ngenye and Kreps (2020) analyzed the future of effective health communication research and stated, "When qualitative and quantitative inquiry are effectively combined in multimethodological designs, researchers can enhance validity, reliability, and application of the research findings" (p. 639). Thus, this study will use a grounded theory (GT) methods approach and utilize both in-depth interviews and extant documents to investigate and conceptualize the

strategies that suicide intervention professionals use to reach and motivate intervention behavior. One of the unique characteristics of the GT method is how it delimits theory and ensures a greater scope of applicability through parsimony, keeping a core concept refined and limited. Therefore, in the second part of this study, in order to ensure parsimony and to adequately test the hypotheses that emerge from the GT study (Cho & Lee, 2014), the core concept(s) will be tested in a controlled experiment for designing effective framing and wording of messages for suicide gatekeepers. In building the theory and testing the conceptual efficacy, this study hopes to contribute lasting knowledge to the process by which suicide gatekeepers can be motivated to intervene on behalf of suicidal peers through social media messages.

Overarching Research Questions

While research questions will be more specifically outlined for both parts of the study, the overarching questions for this research include the following:

- What is the conceptual framework that suicide prevention professionals judge as most effective in influencing message effectiveness and motivating action from suicide gatekeepers on behalf of a peer?
- Does the core concept or concepts in the part of this study using the GT method increase the perception of message effectiveness, behavioral expectation, self-efficacy, and response efficacy of suicide gatekeepers?
- What variables appear to mediate or moderate a social media message's framing effect on suicide gatekeepers' perceived message effectiveness, behavioral expectation, self-efficacy, and response efficacy?

Significance of Study

Suicide is a leading cause of death and a pressing concern for the U.S. population; rates are particularly high for the younger population, especially for young adults who are just beginning to experience independence when they leave home for college (Hedegaard et al., 2021). Yet, reaching these young people can be difficult when help-seeking behaviors do not involve contacting and utilizing professional resources such as counselors and suicide prevention hotlines (Curtis, 2010; Michelmore & Hindley, 2012).

Young adults with suicide ideation may seek help through social networks, or, at the very least, make peers aware of their intentions (Terpstra et al., 2018). These peers become suicide gatekeepers, and reaching them through social media messaging may increase their willingness to intervene on behalf of an acquaintance or friend and help them feel capable of doing so. While literature on effective suicide prevention and message framing may be helpful for initially informing this study, using the GT method gives this research more flexibility to explore the knowledge and experience of suicide prevention professionals to construct a model of social media message design for suicide gatekeepers, with core variables that can be tested more specifically through experimental methods. Therefore, this study aims to significantly contribute to suicide prevention efforts by adding scholarly knowledge in the areas of how messages can best be designed to promote behavior by a specific group of people. While suicide gatekeeper training has been well-developed and broadly implemented (Terpstra et al., 2018), this research will fill a gap in the area of message design by specifically focusing on the concepts needed in messages to promote suicide gatekeeper's initial behavior on behalf of a peer and the types of messages that enable these gatekeepers to feel both effective at reaching out and that reaching out will help their friend. Because suicide is a critical and growing problem, this research

provides significant information for practical application in the areas of mental health communication.

Chapter 2: Literature for Grounded Theory Research

The grounded theory (GT) method was formally introduced through Glaser and Strauss's *The Discovery of Grounded Theory: Strategies for Qualitative Research* in 1967. This theory relies on the collection of qualitative data (in-depth interviews, in-depth document analysis, and in-depth field observation), although it does not negate the use of quantitative data (Glaser & Holton, 2004). The research method has experienced criticism for some of its aspects, including its lack of a robust literature review and its simultaneous collection of data and analysis of that data (Bryant, 2021). However, the health communication field is in need of methods such as GT that can address the complexities of health communication research questions and consider alternatives to pressing health issues and concerns that seem to continue to progress in the wrong direction (Ngenye & Kreps, 2020).

A guiding reason to utilize a GT methods approach is identifying an area that requires theory building through the use of unexplored routes to discover the answers that the research seeks (Charmaz, 2014). Although Glaser and Strauss (1967) define these as untouched areas of exploration, Bryant (2021) explains that this idea may be implausible and instead suggests that GT methods should be chosen for the consideration that an area of research needs a fresh perspective and that researchers should choose topics to study that are meaningful to them.

Although Glaser and Strauss (1967) reject the need for a robust literature review in studies using the GT method, other researchers have supported the use of prior knowledge in establishing the foundation for a GT investigation (Charmaz, 2014). Other research based on GT methods has used thorough literature reviews to build a preliminary framework, especially for structuring the interviewing of study participants and guiding the content analyses (Barrett & Levin, 2014; Moore et al., 2019). Therefore, this study will examine these specific areas of

literature: 1) social media messages' role and effectiveness in health promotion, 2) suicide prevention and intervention strategies, 3) social media message design (with roots in prior literature on health promotion message design). In covering these topics, the literature will provide support for the methods this research uses to answer the questions posed by the study. The chapter that follows (Chapter 3) will discuss the integration of GT methods and empirical methodologies and their advantages in this particular study.

Social Media in Health Promotion

Social Media's Effectiveness in Health Promotion

The digital age has changed the landscape of how people seek and gain information, including health information (Korta & Itani, 2013). Currently, at least 90% of Americans have access to the internet (Statista Research Department, 2022), and social networking also shows a penetration rate of 90% of the U.S. population (Dixon, 2022).

Social media have the opportunity to create systems by which the public can find information concerning certain health issues, allowing these issues to be more thoroughly addressed (Korda & Itani, 2013). People use social media to connect with others and seek information (Whiting & Williams, 2013), and the most recent data available show that more than half of the U.S. population "use the internet as their primary source for health information" (Wang et al., 2020, p. 1164). In addition, people may find support through social networking online (Whiting & Williams, 2013). For example, a social media platform such as Twitter can offer social support across a large social network, and these posts can often provide informational support (knowledge of how to cope with or address a health issue) in addition to emotional support (Myrick et al., 2016).

However, social media platforms also have the opportunity to publicize dangerous and deadly behaviors such as suicide. Research that focused on Instagram, a primarily image-based platform, found that of the 500 posts containing the hashtags of #suicide or #suicidal for a period of four months, about 61% mentioned self-harm (Carlyle et al., 2018). In addition, almost 99% of these posts—which also discussed depression, eating disorders, and loneliness as the cause of these suicidal thoughts—originated from individual accounts, and a mere 2.2% of the posts listed resources on where to get help, suggesting that "given the absence of suicide awareness posts from public and mental health entities, this indicates that Instagram is a likely conduit for suicidal ideation and the normalization of suicidal ideation and self-harm intent" (Carlyle et al., 2018, p. 16). Ultimately, public and mental health professionals are encouraged to have a more active presence on a platform such as Instagram to counteract this trend.

Further, social media have the opportunity to spread misinformation, or information that is false; this is particularly dangerous in health communication, where critical information about the spread of viruses can be rapidly spread, such as in the case of the COVID-19 crisis and Zika virus (Bode et al., 2018; Mheildy & Fares, 2020). As demonstrated in Carlyle et al. (2018), most accounts discussing suicide on Instagram were individual accounts, suggesting a lack of professional posts. Health professionals are encouraged to respond more often to misinformation and correct it, which may entail not only more focus on posting social media messages with correct information and clear directions, but also correcting misinformation and engaging with those who spread false and often dangerous information; in short, health communication specialists who address dangerous health threats (such as suicide) may need to do more to assess populations most at risk and develop and test interventions that combat misinformation (Chou et al., 2018).

In addition, many items may contribute to the engagement of a message, including images, relevance of the post, and quality of the content (Gligorić et al., 2019).

Effective Health Promotion Message Constructs

Planning a message and considering the situation, audience, delivery tone, and wording are all important components of message design (Page & Parnell, 2021). However, one must also evaluate the impact of a message. The first part of this research uses a GT method and builds theory for the designing and planning of effective message delivery. The second part of the research will look at message outcomes. Therefore, the following concepts are important to review for both parts of the study.

Attention to a message and *engagement* with it are key elements in evaluating message efficacy. While engagement with a social media message is a behavior that may indicate attention, attention itself is a cognitive function that can be more difficult to measure without asking audience members directly about aspects of the message or measuring physiological responses (Zhao et al., 2016). Although attention may be considered a vague concept, it can be defined as "an overall level of alertness or ability to engage with surroundings" (Lindsay, 2020, para. 10). Social media engagement has been described as feedback from the message receiver, but it transcends a mere communication transaction and can also be defined as a behavioral manifestation that displays motivation on the part of the message receiver obtained from the social media message (Dolan et al., 2016). In this study, social media engagement is defined as liking or favoriting a post, sharing a post with others, or commenting on a post (Streklova & Damiani, 2016). At this time, research shows that the types of messages that could influence attention because they receive more engagement include messages that use tangible images for intangible benefits, fresh ideas, and celebrities (Edney et al. 2018); however, when it comes to

specific message wording, messages that receive the most engagement for a public health issue include messages that use constructs from the health belief model (Guidry et al., 2020).

To further describe these studies focusing on message engagement as a behavior made in reaction to a message, Edney et al. (2018) provide us an intriguing case study through their "engagement science" examination of Fitbit and Garmin on Facebook, Twitter, and Instagram over a three-month period. When they examined why certain posts performed better than others, they found that showing tangible rewards for healthy behaviors through visuals increased engagement. They also found that using fresh and rotating ideas, as well as using celebrities, improved engagement overall.

In addition, a recent study by Guidry et al. (2020) conducted a more global examination of message attention and engagement. Using the Twitter accounts of national health departments from 12 countries (1,200 Tweets total), they found that visuals increased engagement. However, they additionally found support that using constructs based on the health belief model were effective; that is, the wording focused on concepts that promote healthy or preventative behaviors. These constructs use wording that emphasizes perceived susceptibility of a health threat, perceived severity of a health threat, perceived benefits of performing a specific behavior, cues to action, and self-efficacy (language supporting the ability of the person to perform the health behavior). The national health departments were most likely to use the constructs of perceived benefits, cues to action, and self-efficacy in their social media posts, but all five of the constructs increased social media engagement. This lends support for how using health belief model constructs have an effect on attention and engagement. Unfortunately, half of the countries focused their posts on organizational instead of health topics, and this lessened engagement overall.

Ultimately, behavioral intention and actual behavior are concepts in need of a great deal of research, according to Chou et al. (2018), who says future research in social media should focus on testing interventions and measuring the reach and influence of social media health posts, especially those associated with health misinformation. At this time, research is lacking that shows how often social media actually influence behavior. Over a decade ago, Fishbein and Cappella (2006) expressed that more research needed to focus on actual behaviors in regards to health message design, and this is the next step for social media research as well.

Suicide Prevention and Intervention

Suicide prevention is a strategy that is meant to provide intervention and support for those with thoughts of suicide, which is known as suicide ideation (Office of the Surgeon General & National Action Alliance for Suicide Prevention, 2012). National suicide prevention programs have been shown to be effective, especially among males and in age groups 25-44 years and 45-64 years; effective measures included restricting access to lethal means, such as firearms, and establishing suicide prevention centers (Lewitzka et al., 2019). A meta-analysis of studies focusing on effective youth suicide prevention showed that interventions in clinical, educational, and community settings can reduce self-harm and suicide ideation (Robinson et al. 2018).

Barriers to Preventive Measures

Unfortunately, at least two issues stand as barriers to effective suicide prevention. First of all, as previously mentioned, the internet has been shown to be a place where many in the U.S. population will seek health information (Wang et al., 2020). While this might potentially provide a larger opportunity for suicide prevention services, research has indicated that those with suicidal behavior avoid helpful content and communication and instead use the internet to

research effective suicide methods (Biddle et al., 2018). This finding suggests that the internet may not be as useful for directly reaching those with suicide ideation

Secondly, those with suicide ideation may not be willing to report their intent to kill themselves to health professionals due to concerns that include stigma, overreaction, and loss of autonomy caused by disclosure; however, these same people do identify nonjudgmental listening and expressions of caring as reasons they may overcome those concerns and report their suicide ideation (Richards et al., 2019).

Consequently, in order to combat these barriers, we have the opportunity to focus on suicide gatekeepers. Suicide gatekeeper training consists of educating individuals by granting them knowledge, skills, and confidence to identify others who may be at risk for suicide (Holmes et al., 2021). Suicide gatekeeper training is focused on starting a dialogue that shows care and makes referrals to healthcare professionals when necessary (Terpstra et al., 2018). Recent research has found that knowledge and self-efficacy have the longest enduring effects in this type of training, and gatekeeping training needs to address ideology, social sphere, and culture of suicide gatekeepers (Holmes et al., 2021).

Suicide hotlines and intervention centers are the most-used resources for suicide prevention (Tan et al., 2017). Unfortunately, as suggested by the research (Richards et al., 2019), not all those who commit suicide give clear indication that they plan to do so, which can include hinting or talking about killing themselves; some other behaviors that can be identified by peers and other social connections include traumatic life events such as death or loss of support, changes in medication, and exposure to other suicidal friends, peers, or celebrities (Skerrett, 2012).

In fact, much of suicide prevention research focuses on social support and intervention, and social support networks such as an inner circle of family members, friends, and partners can augment suicide prevention efforts for young people (Junus, 2021). Further, two separate studies gave support for family/social network-based interventions in reducing suicide ideation or attempts (Diamond et al., 2013; Rotheram-Borus et al., 1996). However, although studies on suicide intervention have doubled over the past decade, the majority have focused on participants ages 18 and under, and the authors of the meta-analysis suggest there is a need for high-quality intervention studies, as well as studies that specifically address the stage of young adulthood (Robinson et al., 2018).

Health Communication Messages for Suicide Prevention

Research in health communication "has the great potential to inform health care and health promotion policy and practice, ultimately helping to save lives" (Ngenye & Kreps, 2020, p. 639). Health communication has been linked to improved suicide awareness and knowledge through campaigns (Pirkis et al., 2019). More specifically, suicide prevention has an opportunity on social media platforms, because these platforms may be able to connect directly with those who have suicide ideation, especially if these platforms make use of theories based on decision-making and behavioral intention antecedents, such as the theory of planned behavior, for example (Cox, 2021). Shemanski-Aldrich and Cerel (2009) detail this when they discuss using elements of the theory of planned behavior and how it can be effective in suicide intervention with those who have suicide ideation; effective elements of the theory of planned behavior in regards to suicide intervention include perceived behavioral control (the person feels they can perform the behavior) and attitudes toward the behavior (people feel that it is a right and/or effective behavior). This does show some correlation to the health belief model and the concepts

it puts forth as influencing behavior, including self-efficacy to perform a behavior, the perception of the behavior's effectiveness, and the perceived barriers and benefits of performing the behavior (Green et al., 2020).

However, as opposed to suicide prevention research that has focused on the important role of family and friends (and, consequently, suicide gatekeepers), studies intended to focus on message design for suicide prevention have thus far examined messages meant to directly connect with those who have suicide ideation; one such study found that microblog users indicated that they were open to suicide intervention posts with links to further resources, and these participants valued messages that came from a reliable account, were brief, and contained detailed phone numbers (Tan et al., 2017). Shemanski-Aldrich and Cerel (2009) ask researchers and practitioners to consider targeting family and friends:

> It may be important for researchers and health professionals to consider developing programs that follow a two-step flow. For example, convincing friends and family to intervene when they suspect someone is suicidal may be more beneficial than targeting the suicidal individual directly. Indeed, one viable means of prevention is to better understand those closest to suicidal individuals and what may lead them to intervene. (p. 176)

But what types of messages may motivate friends and family (and other suicide gatekeepers) to intervene? Another study suggests the key concept of *sources of strength*, which is an intervention model that combines traditional suicide gatekeeping training with suicide prevention activities that focus on the traits needed for those who intervene; in a study of high school students, gatekeeping behavior was reinforced by traits such as optimism, empathy, kindness, and extraversion (Wilford et al., 2021). While some people may be more inclined to

have these traits than others, the experience of empathy, also known as state empathy, (versus having trait empathy), can be induced to a certain degree by elements of a message and impact the persuasiveness of that message; elements of high-empathy messages include exposing the audience to a narrative that ties the issue more personally to them (Shen, 2010a). In addition, using wording that emphasizes concepts such as reciprocity, empowerment, and interdependence (the idea that suicide is a community, not an individual, problem) may motivate gatekeepers to intervene on behalf of a peer (Cox, 2021). Ultimately, understanding what motivates suicide gatekeepers to intervene should be part of any message design strategy. Consequently, the wording of these messages, with the concepts that may make them most effective, is discussed.

Social Media and Message Framing

Message framing is the idea that the way material is presented to the audience influences the way they think about it (Page & Parnell, 2021). Much of message framing in a health context has analyzed gain and loss frames, with little to no support of persuasive value for one over the others; those that do have an effect show small effect sizes (Akl et al., 2011; O'Keefe & Jensen, 2007, 2009). Yet, gain and loss framing has been tied to changes in health behaviors through empirical research (Shen & Diller, 2007), and this has been achieved in areas including vaccination, eating unhealthy food, and smoking cessation (Kelly & Hornik, 2016; Kim & Kim, 2016; Yan, 2015).

As discussed, gain and loss framing calls particular attention to the way the outcome is worded (O'Keefe & Jensen, 2007). For example, in the case of smoking, one might give these four types of messages:

- Your heart will be healthier if you stop smoking. (Gain: receive desirable outcome)
- You may avoid lung cancer if you stop smoking. (Gain: avoid undesirable outcome)

- You may give up a healthy heart if you keep smoking. (Loss: lose desirable outcome)
- You may experience lung cancer if you keep smoking. (Loss: receive undesirable outcome)

Ultimately, these small details in the structure of benefits versus risks can make a difference in the way the message is perceived by its audience. O'Keefe and Hoeken (2021) have argued that message design choices in terms of framing do not make enough of a difference, and their research confirms just how small the effect of gain or loss framing is by reviewing multiple studies. In fact, these researchers express, "Message designers should have realistic beliefs about just how much they can improve effectiveness by their choices" (p. 11). While this is examined in more length in the chapter that discusses the results of this study, this research argues that even a small effect size when it comes to lifesaving information cannot be discounted, and this small effect size over time could possibly have a larger influence, even if longitudinal studies on message framing are lacking. Finally, gain and loss frames have been shown to elicit positive (gain) and negative (loss) emotions, and these emotional responses "may offer a pathway through which gain- and loss-framed messages exert persuasive influence" (Nabi et al., 2019). While historically small effect sizes may plague research focused on gain and loss framing, one may not want to discount the value of understanding the best way to word a message for the best possible influence when it comes to life-saving decision-making.

Beyond the idea of gain and loss message framing, wording in social media health-related messages is becoming a standard area for study, including the use of concrete calls for action (Streklova & Damiani, 2016; Tan et al., 2017). In addition, Guidry et al. (2020) found that constructing messages that use constructs from the health belief model (including perceived severity, perceived benefits, self-efficacy, and cues to action) increased public engagement with

posts from state health departments. Once again, although taking the action of engaging with a social media post (liking, commenting, or sharing) does not equate to taking a health action, this study does support the possible effectiveness of using health belief model constructs for gaining attention from the audience.

Consequently, following up these key studies with an analysis of specific message framing and wording for motivating suicide gatekeepers may be a critical step in suicide prevention (Cox, 2021). Online sources can frame their viewpoints to emphasize benefits or consequences of performing or not performing an action (gain/loss), and this may impact attitudes toward the message and behavioral intention (Hilverda et al., 2017). In addition, the information utilized in specific messages may be more useful for increasing knowledge and self-efficacy (Guidry et al., 2016). Therefore, this study will use GT methods to examine these possible framing and informational strategies.

Chapter 3: Grounded Theory Methods

Grounded Theory: Evolution of a Method

In its simplest form, research using a grounded theory (GT) method constitutes a process by which theory is generated; this method is demarcated by both founding and recent GT scholars as a systematic, ongoing discovery of theory through data, with concepts often constructed from in-depth interviews and other data sources, as well as abstracted from the language particular to the field of study (Charmaz, 2014; Glaser & Strauss, 1967). Glaser and Holton (2004) would remind those conducting academic research that "theorizing in GT is an emergent process generated by continuous cycling of the integrated processes of collecting, coding and conceptual analysis with the results written up constantly in memos" (para. 35). The method has been both popular in interdisciplinary research as well as criticized by some when it is used for more of a descriptive, qualitative analysis as opposed to its dedicated purpose of building theory in areas that demand new ideas and conceptualization (Martin, 2017).

According to its original purpose and definition, the GT method begins with data collection and analysis; this is in opposition to research models that rely on literature reviews to establish current knowledge on a particular topic and make predictions or ask questions that build on existing literature's foundations (Lindlof & Taylor, 2019). In fact, Glaser and Strauss (1967) claim that "to undertake an extensive review of literature before the emergence of a core category violates the basic premise of GT methods—that being, the theory emerges from the data, not from extant theory" (p. 49). However, studies do not need to start in a vacuum, and prior knowledge of literature and terms in a particular field can be an asset to the researcher (Charmaz, 2014). Bryant (2021), in discussing the misunderstandings of the GT method and how it has developed since its debut, argues that researchers realize that ignoring prior literature is

neither possible or workable; in fact, to do so may result in a researcher repeating work that has already been completed by others. Also, Bryant further discusses that claiming that an area has no existing research is an unwise criterion for using the GT method; instead, researchers can use the GT method with confidence if they fully explain their reasons for using the theory without making a claim about novelty that is perhaps "impossible to substantiate" (p. 402). Recent GT studies have used literature reviews to provide context for the researchers' questions and a list of helpful data sources with which to begin the study (Barrett & Levin, 2014; Moore et al., 2019; Shim et al., 2021). Ultimately, GT has been established as its own methodology (although it favors qualitative data) (Glaser & Holton, 2004), but it is one that does not have to ignore prior literature (Charmaz, 2014).

Social media have great potential for research as the platforms grow and change. As demonstrated by the Moore et al. (2019) social media mourning model, GT methods can help us begin to understand how communication is taking place online and people's motives for using social media. Therefore, this current study uses GT methods because of the need for fresh theoretical perspective in an area of great research need, as well as the ability of GT methods to bolster research areas that are still in exploratory phases.

Integration of Grounded Theory and Empirical Research: A Question of Paradigms

Despite often utilizing qualitative data, GT is a method that has the opportunity to combine both qualitative and quantitative methods (Shim et al., 2021). While Glaser and Strauss (1967) discourage theory verification and testing, the process of following GT data collection with an experiment provides a mixed methods-GT design that helps refine and/or revise a produced theoretical model (Shim et al., 2021).

The challenge of any mixed-methods study can be seen as a difference in epistemological beliefs, which includes the way we think knowledge is gained in a valid and reliable way. The differences between positivist views (viewer as an objective observer) and constructivist views (researcher as part of the research experience) have been discussed by former and current GT researchers (Bryant, 2021; Charmaz, 2017; Glaser & Holton, 2004). For example, Charmaz (2017), who developed the idea of the constructivist GT method and wrote of its advantages for critical inquiry, argues that constructivist GT methods assume "the viewer and the viewed are joined in the research experience. Positivism, in contrast, separates the viewer from the viewed" (p. 39). Charmaz continues to expunge positivism from the concept of constructivist GT research by claiming that while constructivist GT methods lead to "why" questions, they do not possess the "generalizing impulse of objectivist grounded theory that erases variation and difference" (p. 40). However, several issues arise in this argument that provide a way to utilize a GT approach with more empirical approaches based on the scientific method.

Using mixed methods that employ both qualitative and quantitative collection and analysis in media-related research can provide insight that may be missed if only one collection method is used (Riha et al., 2021). While quantitative methods have been used more historically by positivist or objectivist researchers who seek to follow the guidelines of scientific inquiry, qualitative methods have more often been employed by researchers who identify themselves within the research, with each research study influenced by its natural setting (Lindlof & Taylor, 2019). However, both quantitative and qualitative methods have been associated with a postpositivist approach, in which the researcher understands that although research cannot be made in a value-free setting, both quantitative and qualitative methods add value to our

knowledge; discovery and verification are both critical parts of the research process (Lindlof & Taylor, 2019).

Finally, in their discussion of multimethodological research in health communication and the complexity of using mixed-methods, Ngenye and Kreps (2020) state, "The development of succeeding phases of research using different methods can help inform large-scale research projects, with data from earlier research phases guiding the development of later research phases, and directing the development of evidence-based health communication interventions" (p. 637). Thus, this study combines a qualitative and quantitative data analysis in an effort to deeply explore social media message design for suicide gatekeepers. The research will build theory from in-depth interviews and qualitative document analysis, while experimental quantitative analysis will be used to complete a preliminary test of the conceptual model. In doing so, the researcher hopes to show how both methods can contribute to the body of knowledge on an important topic, while also acknowledging limitations presented by both methodologies.

Terminology in Grounded Theory Method Design

In order to justify the use of the GT method in this research, one must first define key terms in GT methodology. These include theoretical sampling, open coding, the constant comparative method, saturation, theoretical coding, and substantive versus formal theory.

Theoretical sampling. Theoretical sampling entails a process by which the researchers collect, code, and analyze the data in a continuous and concurrent process; the goal is to refine collection and coding procedures as the analysis directs the researcher toward the answers to initial, broad research questions (Glaser & Holton, 2004; Glaser & Strauss, 1967). The basic question that directs theoretical sampling is what groups or subgroups should be used, and what is the theoretical purpose as well as the relevance. The concurrent process of collection and

analysis is what makes GT methods more distinct, because other forms of data may be discoverable after initial collection.

Open and axial coding. Open coding allows a researcher to note the direction of the study. In identifying substantive codes directly from the data, the focus on the relevance of the data becomes clear, allowing the researcher to refine the process of inquiry and collection (Glaser & Holton, 2004; Glaser & Strauss, 1967). Axial coding (also known as substantive coding) involves a process by which linkages between emerging concepts are identified and codes are clustered into categories (Glaser & Holton, 2004; Strauss, 1987). In Barrett and Levin's (2014) GT examination of World Wrestling Entertainment (WWE) romance narratives, they began with open coding by analyzing transcripts line by line to construct preliminary codes, and then they clustered these codes and analyzed these clusters (or axial codes) for "representations of these categories in the data" (p. 565).

Theoretical (or selective) coding. Glaser and Holton (2004) state that the "essential relationship between data and theory is a conceptual code" (section 3.5); that is, while open, substantive coding makes meaning out of the collected data, including statements and behaviors from participants, theoretical codes show the relationships between the concepts in the substantive codes and integrate them into a theory. Also known as selective coding, in this process, predominant themes and core categories are refined into parsimonious theory (Barrett & Levin, 2014).

Constant comparative method. The constant comparative method entails evaluation of incidents in the data that either support or involve disjuncture between the developing categories supported by the codes (Glaser & Strauss, 1967). The process utilizes three types of comparison that take place during the analysis: 1) incidents compared with incidents from the data; 2)

concepts compared with further collection of incidents; and 3) concepts compared with concepts (Glaser & Holton, 2004). Ultimately, the researcher may be able to further discover connections, overlap, and negative examples in using this method.

Memo writing. Also referred to as an audit trail by some GT researchers (Barrett & Levin, 2014), "memo-writing is the pivotal intermediate step between data collection and writing drafts of papers" (Charmaz, 2014, p. 162). Memos capture the researcher's thoughts during data collection and analysis, and these are not only useful, but also necessary, in showing the connections from the open coding of data such as interviews and documents, to the formation of and the connections among the resulting concepts (Charmaz, 2014). These memos can help support the rationale for the researcher's findings because this qualitative approach to research must show validity through limited generalizability with results that are plausible, insightful, and useful (Lindlof & Taylor, 2019).

Saturation. A researcher using the GT approach will be concerned with data saturation. This refers to a point when the data being collected no longer alter themes that have been developed in the codebook (Charmaz, 2014). Theoretical saturation of categories includes elements of the constant comparison method in which categories may ultimately need to be redefined, or a rationale must be provided for a negative case (Glaser & Strauss, 1967).

Next, the rationale for using a GT method for this particular research will be discussed.

Benefits for this Study Using a Grounded Theory Method

Health communication research has the opportunity to benefit from research designs outside of traditional quantitative methods because of the many individual, organizational, and societal influences on health behavior decisions; that is, full examination of health behavior situations and attitudes may be complemented by methods that describe and analyze processes

through in-depth interviews, ethnographic research, and phenomenological analysis (Ngenye & Kreps, 2020). GT methods blend the idea of socially-constructed qualitative data with "empiricist rigor" (Ngenye & Kreps, 2020, p. 634); its use of theoretical sampling and saturation provides validity through the opportunity to reduce error in interpretation. GT methods have been used for a number of studies on social media, including analyses of social media mourning, new mothers on social media, and social networks of young people with cerebral palsy (Davis, 2015; Hynan et al., 2015; Moore et al., 2019). GT methods allow a researcher some room and freedom to inductively analyze novel situations (Glaser & Strauss, 1967), making it a useful method for this research because it allows the researcher to explore areas of suicide prevention and intervention in a way that acknowledges but is not constrained by previous studies on suicide prevention messages, allowing the researcher to explore with more flexibility the concepts that may have the most opportunity to influence intervention on behalf of a suicidal peer.

Research Questions

This study began with a GT method approach in which the research questions functioned more as a guide, which is different from most qualitative and quantitative studies that rely on questions and hypotheses formed during a literature review (Cho & Lee, 2014). The GT method begins with data collection and simultaneous analysis (Charmaz, 2014; Glaser & Strauss, 1967). Although both Charmaz (2014) and Bryant (2021) discuss the use of literature reviews in guiding research, especially in the midst of data collection (Bryant quotes Ian Dey as saying "an open mind is not the same as an empty head" [p. 401]), they also confirm that data collection and analysis begin right after identification of the main concern (or theme) of the study. Therefore, the guiding research questions for this study include the following:

1) What core concepts are used by suicide prevention specialists to communicate and motivate those who would be considered suicide gatekeepers?

2) How do messages on social media from suicide prevention organizations reflect these concepts or show disjuncture between the expressed concepts and those utilized on social media?

3) What concepts have influenced suicide gatekeepers to intervene in the past? How do these concepts confirm or show disjuncture with the other identified concepts?

Data Collection

As discussed, data collection in the GT method is a fluid process by which the researcher begins early in the research with collecting data sources that he or she believes will answer the main concern identified in the study (Glaser & Strauss, 1967). However, these data sources may continue to expand and even change direction based on what the researcher discovers in the early process of open coding (Charmaz, 2014). Therefore, this study pinpointed in-depth interviews and social media posts from suicide prevention organizations as preliminary data sources with which to begin the investigation. However, as the study progressed, the researcher became aware of new sources, collected samples from these sources, and analyzed them for the purpose of building and checking the emerging categories.

In-depth Interviews

In-depth interviews are foundational to the GT method, providing the researcher with the opportunity for the data to be discussed in an open matter that does not "force" ideas into categories and gives the interviewer and interviewee the opportunity to construct meaning (Charmaz, 2014; Glaser & Strauss, 1967; Lindlof & Taylor, 2019). Further, using in-depth interviews "have been shown to provide strong qualitative data that allow for interviewees to more fully explain their feelings" in addition to establishing "bonds of trust" (Moore et al., 2019,

p. 235). Charmaz (2014) further explains that qualitative data such as interviews "add new pieces to the research puzzle or conjure entire new puzzles while we gather data, and that can even occur late in the analysis" (p. 25).

Although in-depth interviews are the primary means for obtaining data and building theory according to Glaser and Strauss' formal introduction of the GT method (1967), document analysis should not be overlooked as a critical area of analysis. Documents provide evidence of constructed meaning and describe language and practices used within a certain area of interest, especially extant documents, which are useful for generating categories and even the emerging theory itself (Charmaz, 2014). When the researcher initiated this GT study, social media posts from suicide prevention agencies were collected and analyzed in an open coding process.

This GT study collected two types of data—in-depth interviews and social media posts; however, this pool of data was expanded, according to methods described by Glaser and Strauss (1967), and new types of data were sought when findings from the original data sources pointed to certain individuals or documents that could further define conceptual categories and saturate them—thereby ensuring the information that continued to be collected fit into the framework that was under construction (Charmaz, 2014). Because in-depth interviews with open-ended questions can result in rich data that can be followed up with questions or clarification (Lindlof &Taylor, 2019), interviews with individuals in the field of suicide prevention for young adults were sought with professional counselors and other prevention specialists. Institutional review board approval was granted before potential candidates were contacted. The interviewees included college counselors, psychologists, social workers, public health professionals, and other suicide prevention specialists (Steele, 2021). These professionals were sought for informant interviews (people who have specific knowledge that is needed) for the purpose of face-to-face

interviews both in-person and through video conferencing; these types of interviews were best for obtaining data that included nonverbal responses, which allowed the researcher to read body language; for instance, if the interview participant grimaced or smiled in response to a question, that allowed the researcher to better formulate follow-up questions (Lindlof & Taylor, 2019). Several interviewees offered snowball sampling, whereby they suggested others who could speak about the topic the research was exploring.

Ultimately, nine interviews were conducted in-person or through Zoom and were audio-recorded and machine-transcribed. Participants were emailed the consent form before the interview, and this consent form was put on file before the interview took place. At the beginning of each interview, participants were reminded that they would be audio recorded, and the audio recording began with their names and job titles. Each interview included a period of "breaking the ice," where the researcher and the interview participants shared their background and experience, particularly as those areas related to suicide prevention and intervention. This period of getting to know one another is recommended by Charmaz (2014). Next, each interview participant was guided through questions (although not always in the same order or with the exact same wording) that are presented in the interview guide. At the end of each interview, participants were able to add any information that they felt had been missed or that should be emphasized. This part of the interview often revealed novel information to the researcher, outside the scope of the questions that were prepared. Although the researcher took notes throughout the interview, the interview audio files were uploaded to a password protected program, where a machine-transcription service transcribed them. After reviewing the machine transcriptions for accuracy, the researcher could then check the notes taken against the transcription both after the interview and during the data analysis process.

Overall, these interview participants had over 180 years' worth of suicide prevention experience. Here is a list of the organizations that agreed to participate in this research through in-depth interviews.

- American Foundation for Suicide Prevention (afsp.org)
- Suicide Prevention Resource Center (www.sprc.org)
- UCO Center for Counseling and Well-Being (www.uco.edu/student-resources/center-for-counseling-and-wellbeing)
- OU Department of Human Relations (www.ou.edu/cas/humanrelations)
- Oklahoma State Department of Education (sde.ok.gov)
- Kaiser Family Foundation (www.kff.org) (This organization reviews mental health news in an in-depth manner.)
- Thrive OKC (thriveokc.org) (This organization works with young adults in the Oklahoma City metro area for better mental and sexual health.)
- NorthCare OKC (www.northcare.com) (This organization provides mental health services in the Oklahoma City metro area)

Social media messages and online content and resources from these organizations were further examined to analyze concepts that the professionals described as most effective for reaching peers who can act as suicide gatekeepers.

The Interview Guide

Suicide prevention research, specifically in the area of suicide gatekeeper intervention, necessitates an analysis of understanding gatekeeper motivations and media habits (and perhaps, specific to this study, social media habits). In order to begin to identify what strategies are used

to promote intervention on behalf of a peer at suicide risk, this study interviewed professionals and openly discussed the following topics:

Terminology in the field that will help this study be applicable for outsiders. Questions for interviews included the following:

- "Who is a suicide gatekeeper?"
- "How do you define suicide intervention?"
- "Who is a peer?"

The social media platforms that appear to be most useful in reaching young adults. Interview questions that focus on useful and effective social media platforms included the following:

- "What social media platforms do you find yield high engagement from a young adult audience?"
- "What social media platforms are most effective at reaching your target audience?"
- "How do you decide which social media platforms to use to reach a young adult audience?"

Factors that influence suicide gatekeeper message engagement and reception. Interview questions included the following:

- "What type of wording do you think helps people engage online with a message to reach out to a suicidal friend?"
- "What type of wording to you think helps people feel positive toward a message to reach out to a suicidal friend?"

Factors that influence suicide gatekeeper action. Interview questions included the following:

- "What types of phrasing do you think motivate suicide gatekeepers to intervene on behalf of a peer?"
- "How do you design messages that catch the attention of suicide gatekeepers?"
- "What factors are most motivating for suicide gatekeepers to intervene on behalf of a suicidal peer?"
- What type of knowledge should a message contain to help a person reach out to a suicidal friend?
- What type of wording might help a suicide gatekeeper feel capable of reaching out to a friend?
- What type of information in a message helps a person feel that reaching out to a suicidal friend will be beneficial?

Benefits of intervention versus consequences of inaction. Questions included the following:

- "What happens when suicide gatekeepers do not intervene?"
- "What do peers gain when they help a peer who is at risk of suicide?"

Extant Document Collection

Social media accounts of the organizations listed above in addition to other suicide prevention organizations and partners were examined to compare the answers from suicide prevention professionals and licensed professional counselors identifying the best messages and information for reaching suicide gatekeepers. The accounts were examined during the months of May and June, 2022. A list of these social media accounts is provided in Appendix A.

Social Media Post Data

More than 100 social media posts were examined for the following elements.

- **Suicide gatekeeper terminology**. Social media posts from the selected organizations were analyzed for frequently-used terms and the inherent meaning of these terms.
- **Reach and engagement**. Social media platforms were analyzed for positive engagement on posts meant to encourage suicide intervention behaviors. This includes likes, shares, and comments.
- **Motivating factors**. Social media posts were analyzed for how messages were framed to influence attitudes and invite action.
- **Benefits and consequences**. Due to past research on gain and loss framing (Kelly & Hornik, 2016; Kim & Kim, 2016; Yan, 2015), this area was further investigated. Specifically, the research sought to determine if benefits and consequences were prevalent in posts meant to reach suicide gatekeepers.

Social media posts were added to a document for analysis by date of post. The document included, in addition to the posting date, the social media post's text and a description of any links, images, or videos that the post included. Finally, the number of likes (or favorites), shares, and comments were documented. The researcher placed comments next to each post to pull out concepts that emerged from the language and framing of the post.

Other Extant Documents and Data Sources

As the study continued, a total of 53 other data sources were identified as useful for refining the concepts that became clear as the study shifted from open coding to axial coding.

These include the following (a comprehensive description of sources is provided in Appendix A).

Suicide survivor stories from Live Through This (livethroughthis.org). Live through this provides a broad collection of suicide survivor narratives and interviews.

> "Established in 2010, Live Through This is a collection of portraits and true stories of suicide attempt survivors across the United States…Media coverage and public attention typically focus on people who died from suicide, rather than those who lived to tell the tale, forfeiting an important opportunity to truly understand the complicated issue of suicide from a first-person perspective…Live Through This fills that gap, reminding us that suicide is a human issue by elevating and amplifying attempt survivors' voices through raw, honest stories of survival, and pairing them with portraits of those survivors in the moments just after telling their stories—putting faces and names to the statistics that were the only representation of attempt survivors for far too long." (Live Through This, 2022a).

These narratives also filled the gap in this research, providing raw and emotional data without the need to intrude on suicide survivors, who may still be in a vulnerable place when it comes to suicide ideation. The study evaluated 13 digital written narratives, which were approximately 4,000 to 7,000 words each. The study examined these stories particularly for discussion about interventions that suicide survivors identified as helping them avoid further intentional self harm. The study focused special attention on how family and friends either helped or did not help the person with suicide ideation.

Online training material and YouTube videos from a variety of organizations. Through interacting with interviewees, as well as through exploration of suicide prevention

websites and social media posts, 11 online training materials were examined—including a seven-hour course on responsible suicide coverage and prevention strategies for media professionals. In addition, 10 online videos posted on YouTube.com were analyzed that targeted suicide gatekeepers.

Academic articles. In order to better understand an academic perspective on suicide gatekeeper training outcomes and suicide prevention campaign messaging, 19 articles were identified and reviewed to further refine and categorize the concepts.

Data Analysis and Constant Comparison

One of the aspects that has been suggested as unique to the GT method is the concurrent collection and analysis of data. In this study, while interviews were conducted and social media posts were collected (in addition to other extant document sources identified during the analysis process), the researcher began with open coding, then refined the categories, and finally identified the theoretical concepts and connections among them (Charmaz, 2014). This stage entailed the use of constant comparison, and Glaser and Strauss (1967) describe the four stages of constant comparison, which begins with comparing incidents that are applicable to each category. In this step, the researcher not only constructs categories from the data, but also abstracts categories from the situational language. Using the transcription and notes from the interviews, the researcher was able to examine areas closely to organize the data and direct the coding process.

In order to show how this process developed and shaped the GT study, detailed memos were kept to record changes in researcher conceptualization as data was coded into the developing categories. Statements from these memos are included in the results and discussion of the GT study findings. Next, categories and their properties were integrated, which further

refined the categories. This was a step-by-step process, and "as coding continues, the constant comparative units change from comparison of incident with incident to comparison of incident with properties of the category that resulted from initial comparisons of incidents" (Glaser & Strauss, 1967, p. 108).

Following this stage was the phase of theory delimitation, where underlying uniformities were determined. This step emphasized parsimony and scope for developing the conceptual model. Coding saturation was reached (new data fit with what was already found), where new data sources showed support for the identified model. Any cases that did not fit precisely in the model are also reviewed in the discussion (Glaser & Strauss, 1967).

Finally, from the underlying uniformities and identified themes, the model of social media message design for suicide gatekeeping is proposed and explained. However, although Glaser and Strauss (1967) suggest that the research is complete at this point and does not necessitate verification, this study uses a second methodology to refine and strengthen what has been discovered, employing a mixed-methods approach (Shim et al., 2021).

Chapter 4: Grounded Theory Results and Discussion

The purpose of the first part of this research is to identify the elements of effective message design for suicide gatekeepers. This study focuses on the framing and wording of messages, with specific attention to indications of gain and loss (O'Keefe & Jensen, 2007) as well as constructs that might be used to influence behavioral intention. All of the interviewees and research articles used in this study supported the value of gatekeeper training (see Appendix A for a full list of sources). However, wide exposure to these programs still does not take place; therefore, providing knowledge and actionable items in social media messages may reach a larger audience of potential gatekeepers (Labouliere et al., 2015).

An item noted in the data collection, particularly in one of the interviews, is that the term *suicide gatekeeper* may change in the future. One of the interview participants discussed the heavy responsibility and the bestowing of power that this term gives another person when helping someone with suicide ideation. The term seems to put peers directly in the place of stopping a suicide, instead of designating them as assistive in the process of preventing suicide. Those considering suicide do not need to be rescued; they need help, encouragement, and partnership. The term *gatekeeper* may give another person the idea that he or she must control someone with suicidal thoughts and ensure that a suicide does not take place; or, if a person takes his or her life, gatekeepers may feel they did not perform "their job" well enough to save a life. While this study continued with the use of the term *suicide gatekeeper* because the term is still used prolifically by both researchers and suicide prevention specialists, this research notes that this term may change in the future, thus affecting the terminology used in this research and the emerging model.

In addition, in order to keep the research focused on the wording of effective messages, this study did not examine the type of social media platform, use of visuals, and other social media post elements. While the literature suggests these items may affect message attention and engagement (Edney et al., 2018), the framing and wording of a message that must be both brief and effective remained the primary concern of this study. Social media platforms rise and fall in popularity and will continue to change according to users' needs and desires (Spencer, 2018); what is designated as a popular platform among young people now may not be their social media platform of choice in the future. However, examining brief wording and engaging concepts in social media messages will continue to be relevant no matter the social media platform used (Heath, 2022), suggesting that the research in this study has the opportunity to remain viable for some time to come.

The Grounded Theory Process

This study began with a grounded theory (GT) examination of the answers to questions asked during in-depth interviews with licensed professional counselors and other professionals focused on suicide prevention. Concurrently, the researcher's open coding of social media messages from the organizations listed in Chapter 3 helped determine concepts and wording that organizations use when attempting to connect with those who might help someone showing signs of suicide ideation. Early concepts that emerged included providing brief knowledge or links to information to potential suicide gatekeepers. Social media messages from the organizations examined in this study often indicated that potential suicide gatekeepers needed to be able to *identify* those who might exhibit signs of suicide, because those with suicide ideation may not bring the subject up. One example Facebook post from the American Foundation for Suicide

Prevention stated, "It's not that I want to die... I just want to stop existing for a while." It linked to an article titled "15 Things People Say That Are Code for 'I'm Passively Suicidal.'"

In addition, other information that was shared through social media included instruction about how a person can *listen* to others and about how a person can connect a friend with suicide ideation to *resources* that may help. As one interview participant directly stated, once someone becomes aware of a person's suicide ideation, "Doing something has value. All you have to do is notice something is off and who to call." Another interview participant discussed that people should know that they can help point their friends to help; they are not alone in this process and many resources exist to make intervention easier to initiate. A message on the National Suicide Prevention Lifeline Facebook page expressed the need to listen to friends: "Take some time today to check in on your loved ones and tag them below to let them know you're thinking about them!" More message examples are shown in Appendix E, Table 1.

During this open coding process and while the researcher continued to reach out to organizations for interviews, the researcher became aware of livethroughthis.org, an online repository of suicide survivor stories, as well as various YouTube videos that were educational and/or promotional for suicide prevention, particularly for a suicide gatekeeper target audience. In addition to the first three in-depth interviews, these sources were utilized to better understand the knowledge needed for intervention. Suicide survivor stories from livethroughthis.org were examined for family or friend interventions that were helpful to the storyteller (or the lack of that intervention). The videos were more informational about suicide warning signs and how to take action, and they took a persuasive angle in encouraging people to reach out to their friends or family with suicide ideation. Finally, academic articles that focused on successful and effective

strategies for motivating and informing suicide gatekeepers were used to further refine the emerging concepts.

All of these data sources provided an early conceptual map. As the researcher continued to analyze data and discuss changes in thinking through memos, the research process moved into axial coding by identifying core concepts for social media suicide gatekeeper message design.

A memo written at this point reads as follows:

> "Patterns continue to emerge. When speaking to those who might become aware of suicide, discussing not only the means of starting a conversation but also next steps appears to be the primary focus of online information beyond looking for signs (awareness)."

Emergence of the Social Media Message Design Model for Suicide Gatekeepers

As the research progressed, a rough, preliminary model was constructed for social media message design for suicide gatekeepers. Social media messages and interviews emphasized the need for suicide gatekeeper knowledge in particular areas in order to support self-efficacy (the feeling that one is capable of performing an action) and response efficacy (that intervening could help a friend). In addition, interview participants and research articles about effective gatekeeper training outcomes emphasized how certain types of knowledge contributed to self-efficacy and response efficacy, which in turn would encourage suicide gatekeeping behaviors (Hangartner et al., 2018). This underscores a connection to the theory of planned behavior (Ajzen, 1991), which notes that attitudes and perceived behavioral control influences behavioral intention.

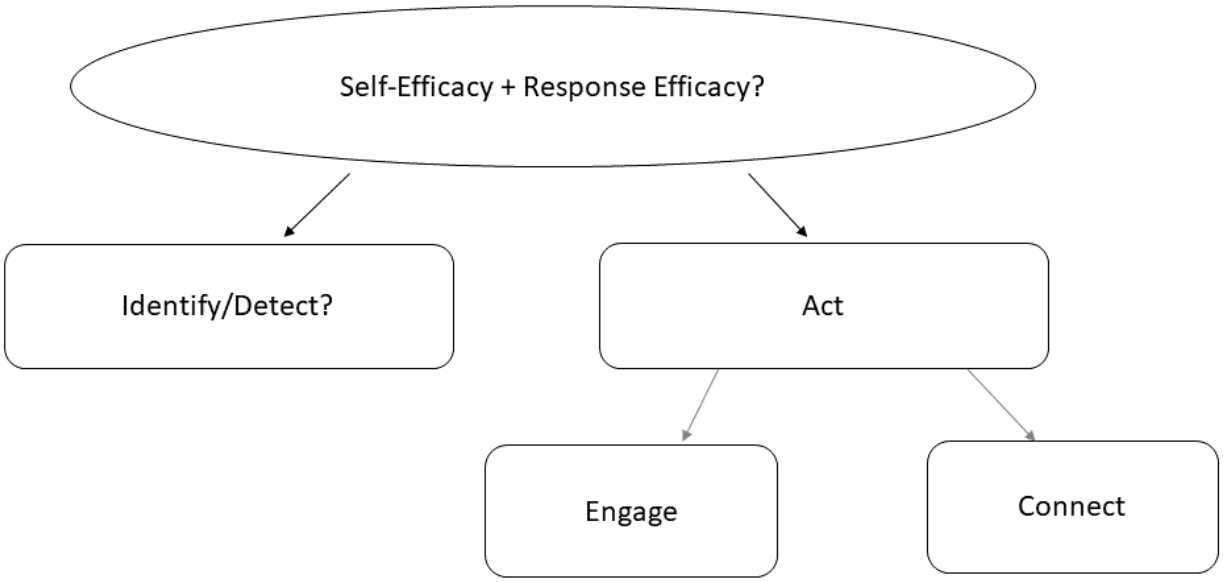
According to both sets of data—the interviews and the extant documents—suicide gatekeeper self-efficacy and response efficacy should support their behaviors divided into two areas: *detecting* suicidal behavior and *taking action* in the best interest of someone who is

suicidal. The concept of action was further divided into two categories: *engaging* the suicidal peer in conversation and *connecting* that peer to resources/help (see Figure 1 and examples of messages and quotes in Appendix E, Table 2). A memo composed at the beginning of the axial coding process reads as follows:

> "At this point, the core concept of behavior through self-efficacy and response efficacy holds strong with the three sub concepts of Detect, Engage, and Connect. I am still struggling to figure out if addressing misconceptions or fear and empathy would be more appropriate to test. Both the seriousness of suicide signs and the need for others to reach out were strong in the stories completed today."

Figure 1

Initial Suicide Gatekeeper Social Media Message Concepts



Refining the Model

As the research continued and axial coding progressed toward theoretical coding, areas that were not as concrete began to become more firm and easier to define. Interviews with

prevention specialists and counselors were useful, but the online documentation and academic articles began to suggest where common language fit into broader, more theoretical concepts. In the process of collecting further data, elements were added to the social media message design model for suicide gatekeepers that would be more exploratory and more in need of testing.

In using the constant comparison method, this research was able to further identify the core categories of detection, engagement, and connection that are critical for effective suicide gatekeeper behavior (and are therefore necessary elements to be highlighted in social media messages). However, as the researcher compared interview notes and extant documents, a common thread in the interviews and survivor narratives continued to appear—that of suicide gatekeeper misconceptions. As these misconceptions continued to be examined in interviews, training materials, online narratives, and academic research, they eventually became part of the model. The common misconceptions were described and then further analyzed through interviews and academic articles by the researcher. Ultimately, these misconceptions showed a link to constructs reflecting elements of the health belief model (Rosenstock et al., 1988). This process is further described below. A memo from this point in the research process reads as follows:

> Today felt like a breakthrough with the concept map. The information that suicide gatekeepers receive focuses on knowledge about detecting, engaging, and connecting. These can be inhibited by misconceptions—the three most prevalent are the ideas of suicide ideation not being serious (insignificance), planting ideas of suicide by talking about it (maleficence), and being unable to prevent suicide (inevitability). However, using phrasing that focuses on the seriousness of suicide ideation (significance), the benefit of talking about it (beneficence), and the ability to stop it (preventability) may be

useful methods of cognitive persuasion. In addition, effective appeals focused on the guilt/fear (loss) of not intervening versus the empowerment (gain) of intervening.

The Health Belief Model Connection

As the interviews and document analysis continued, the misconceptions mentioned above started to emerge. As they did, the researcher uncovered a relationship between the misconceptions and certain elements of the health belief model (Rosenstock et al., 1988).

The health belief model, which was initially developed in the 1950s by behavioral scientists in the U.S. Public Health Service, included four original concepts (Green et al., 2020):

- Perceived susceptibility (to a health threat).
- Perceived severity (of a health threat).
- Perceived barriers (to performing the promoted health behavior).
- Perceived benefits (of performing the promoted health behavior).

Green et al. (2020) further review how these constructs expanded, most specifically to reflect “specific areas of behavioral change” (p. 212); these include:

- Perceived susceptibility to a specific health problem.
- Perceived severity of a certain health condition.
- Belief in the effectiveness of a health behavior (which can also be referred to as response efficacy).
- Cues to action (how someone hears about a health behavior or watches someone else succumb to a health threat).
- Perceived benefits that show how to avoid negative health outcomes.

- Barriers to taking the health action that include negative attitudes, financial barriers, and physical and psychological challenges (such as feeling an emotion of fear toward performing the action).
- Self-efficacy in respect to the belief that one is capable of carrying out the health behavior.

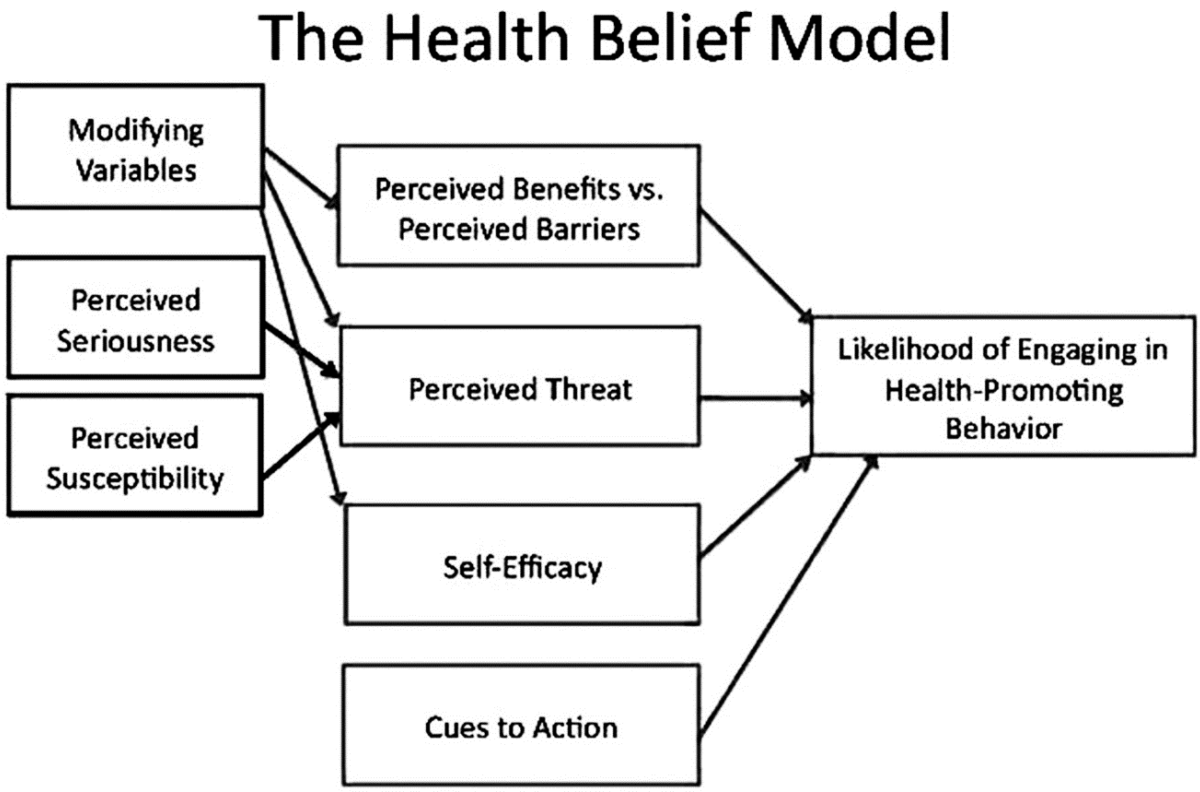
Green et al. (2020) discuss that although the model has been useful in studying health behaviors, health communicators and health promotion specialists must "clearly demonstrate how the intervention design is informed by the theories and measure the theoretical constructs before and after the intervention, as well as the associated changes in behavior" (p. 214). Past research has examined how health belief model constructs explain or predict health behavior, including studies that showed that perceived severity and perceived susceptibility were weak predictors of behavior, whereas perceived benefits and perceived barriers were consistently strong predictors of behavior (Carpenter, 2010).

While these discrepancies are in need of resolution, one must note that health behaviors are quite complex and motivations for performing health behaviors differ in the areas of getting diagnostic tests, engaging in healthy lifestyles, and putting an end to dangerous health behaviors (Green et al., 2020). In the case of suicide prevention, one must consider that the behavior is taken on behalf of another person. A study that examined COVID-19 preventative behaviors found that elements of the health belief model, including benefits of the behavior, cues to action, and barriers to behavior, were associated with participants adopting COVID-19 preventative behaviors (Alagili & Bamashmous, 2021). COVID-19 preventative behaviors may be seen as benefitting oneself and others, so these findings show some support for the health belief model influencing a behavior that affects another person. Another study showed support for health

education improving mothers' health belief in safe sleep practices for their infants; although this suggests knowledge as a precursor to the health belief and behavior, health education supports response and self-efficacy—health belief model constructs—in promoting a person's life-saving action toward another (Elsobkey, 2018). Therefore, the health belief model has shown opportunity for predicting health promotion and lifesaving behaviors performed by one person on behalf of another. This study moved to determine connections between the concepts of the health belief model and the knowledge needed to correct the misconceptions that continue to persist in suicide prevention. See Figure 2 for an illustration of the health belief model (Glanz et al., 2008). Modifying variables include demographic and psychosocial variables that may affect perceptions (Ulrich, 2017).

Figure 2

Illustration of Health Belief Model



Note: This figure reproduced from *Health Behavior and Health Education: Theory, Research, and Practice*, by K. Glanz, B.K. Rimer, and K. Viswanath, 2008, San Francisco: Jossey-Bass (Wiley imprint).

The following section describes the common misconceptions concerning suicide prevention on behalf of another person. The links that emerged between these misconceptions and elements of the health belief model are described.

Misconception 1: "You shouldn't talk about it."

All of the interview participants and many of the social media messages and YouTube videos acknowledged that talking to others about suicide can be unsettling. One interview participant said, "It's a difficult subject to discuss…Sometimes we don't know how to enter that conversation, or we're worried about bringing it up." In fact, an article about the need for more reporting on suicide states a common thread found in all the sources used in this GT study: "We're afraid that merely asking might be planting a dangerous idea. But mental health counselors now say we should take time to ask and to listen and to offer help if it's needed" (Kissinger, 2018, para. 17).

This highlights a common suicide prevention misconception—that talking about suicide with someone will plant the idea in his or her head. This was vehemently denied by interview participants and is often addressed as a misconception in gatekeeper curriculum (Hangartner et al., 2019). Although journalist training may review that sensationalizing the details of a suicide has the potential of contagion effect (Kissinger, 2018), one interview participant stated, "It's not as if a person has not thought of it [suicide] before."

In fact, interview participants and online training material highlight that most young people with suicide ideation will be relieved to have a conversation about suicide, and often a conversation may prevent them from taking their life. Survivor narratives on livethroughthis.org

focused on the times that no one talked to these survivors about their suicidal thoughts; often, these survivors knew they should bring the topic of suicide up, but they didn't want to burden someone. This suggests the importance of suicide gatekeepers bringing up the topic for them.

In addition, identifying the signs of suicide and initiating a conversation is one of the first steps of suicide prevention. The Trevor Project uses the CARE approach to conversation (Connect, Accept, Respond, Empower) (Trevor Project, 2021). Instead of avoiding the topic, the Trevor Project, through the CARE approach, encourages its audience (perhaps even impels them) to broach the subject in a caring and compassionate way, and then to take immediate action by discussing suicide resources with a suicidal peer. In short, shrinking from the topic is not the answer to saving a life. The National Suicide Prevention Lifeline (2022a) encourages this same engagement on social media, through engagement with an individual through comments, sharing, and links to resources. The National Suicide Prevention Lifeline (2022b) in its online document, "Help Someone Else" admits that conversations such as these may stir up emotions on the part of the suicide gatekeeper; however, the importance of the action in helping and perhaps even saving a friend cannot be overemphasized. In short, interview and document sources overwhelmingly supported the importance of engaging a peer or friend with signs of suicide in a conversation that directly addresses whether that person is considering taking his or her life. This may be a life-saving action.

Thus, the first informational construct of importance in suicide gatekeeper message design is that of *beneficence* of action. While the barrier to discussing suicide with an individual can include concern about planting the idea in that person's head, educating others on the advantage of taking this action on behalf of another person emphasizes the benefit of the action and overcomes a barrier that is false—that of concern over introducing suicide to the individual.

This construct connects with perceived benefits versus perceived barriers to action in the health belief model (Rosenstock, 1988). If a person perceives the benefits of asking about suicide ideation instead of thinking that mentioning suicide is a barrier or even a threat, that person may be more likely to engage in suicide gatekeeper behavior. Consequently, the data tied the idea of beneficence to perceived benefits of intervention by a suicide gatekeeper.

Misconception 2: "Once a person decides to commit suicide, no one can stop it."

A second prevalent misconception about suicide prevention is the idea that suicide is inevitable. Interview participants mentioned that suicide doesn't have to take place; in fact, many individuals with suicide ideation, even those with a plan, are open to the idea that their lives mean something. Further, one of the narrators of a suicide survival story on livethroughthis.org discussed his immediate thoughts after his suicide attempt; as he began to lose consciousness, he remembered everything he had to live for, all the reasons in his life he had to stay alive. Fortunately, he ran out into the street for help, and lifesaving medical assistance was provided (Live Through This, 2022b). The narrator's story demonstrates a tragic possibility that many of those who commit suicide would regret the action even a moment after the lethal action is taken. One conversation with a friend or family member could change a person's mind from taking his or her life on a particularly difficult day.

The National Action Alliance for Suicide Prevention (2021) developed key messages for suicide prevention with the aid of approximately 20 mental health and suicide prevention partners, and those messages emphasize that action can and should be taken by gatekeepers. In addition, the National Action Alliance (n.d.) discussed the need to emphasize, in suicide prevention messaging, the behavioral efficacy of taking action because prevention works and recovery is possible. In the video, "Talk Saves Lives," the American Foundation for Suicide

Prevention informs the audience that research has shown that suicide is preventable, and action is needed to help decrease the high rates of suicide (AFSPNational AFSP, 2015).

The Trevor Project (n.d.) asserts that although you can save a life, you are not responsible for a person taking his or her life. In fact, several interview participants were careful to note that telling people that every suicide is preventable may cause psychological distress and harm for people who lost someone to suicide; instead, using phrasing such as "many suicides may be prevented" has a potential to emphasize the opportunity to prevent suicide without placing unnecessary guilt on those who may have tried everything they could, but they could still not stop someone from taking his or her life.

Therefore, the *preventability* of suicide is an important concept meant to debunk the misconception of inevitability of the act. The concept of preventability also emphasizes the ability of a suicide gatekeeper to be influential in intervention. The concept also relates to the idea of perceived benefit of taking action in the health belief model (Green et al., 2020). In addition to the beneficence of engaging in a conversation and providing relief to a peer with suicidal ideation, the knowledge that suicide is preventable in most cases may support further perceived benefits of intervention (saving a life). This idea of perceived benefits links to the idea of response efficacy; that is, belief in the effectiveness of a health behavior (Green et al., 2020). Thus, preventability also shows a strong link to the health belief model's construct of perceived benefits of the health action.

Preventability is an important belief when it comes to suicide gatekeeper intervention, but it ties closely to the next misconception. Sadie Penn, in the YouTube video "Shattering the Silence: Youth Suicide Prevention" discusses statistics showing that 81% of people who attempt suicide tell someone beforehand (TEDxYouth@Lancaster, 2017); when people discuss their

suicide ideation, this presents suicide gatekeepers with opportunities to intervene, if only they will believe they are capable of helping and protecting the person with suicide ideation; in addition, they must overcome a third misconception: that the threat to take one's life is a serious one.

Misconception 3: "People aren't serious about suicide. They are just looking for attention."

A third misconception outlined in both the online training materials and through multiple interviews is that people who talk about taking their life or show signs of suicide ideation are just looking for attention and not serious about taking their lives.

This is a serious error in thinking. The American Foundation for Suicide Prevention (2022) highlights that anyone with warning signs of suicide or anyone who discusses suicidal thoughts should be taken seriously. Further, the National Suicide Prevention Lifeline (2022b) warns that people who talk about suicide should be considered likely to take their lives. The National Action Alliance (2021) clarifies that mental health is a serious matter that deserves a response in the same way we respond to physical health matters. Conversely, suicide survivor narratives on livethroughthis.org often discussed the apathy in family members and friends when the suicidal individuals discussed their ideation (which led them down the path to trying to take their own lives).

An interview participant with more than 25 years of suicide prevention experience addressed this misconception specifically. The participant expressed how critical it can be for a peer or parent to understand that any sign of suicide ideation, and especially a request for help, should be considered a direct threat to that person's life. She said, "Think about it as someone is threatening to take the life of someone you love—because they are." In addition, another interview participant said that saying things such as, "You're not thinking of taking your life, are

you?" is not productive. In fact, one of the suicide survivors on livethroughthis.org provided this narrative:

> So, I told a doctor at my college infirmary that I was depressed and they were like, "Oh, you're just stressed out 'cause you're about to graduate," and, "You'll be fine," and, "Lay off sugar," and, "Get some sleep," and just really useless advice. (Live Through This, 2022c)

This supports the idea that misunderstanding the significance of suicide warning signs and language can be dangerous. The American Foundation for Suicide Prevention (2022) states that as soon as someone shows signs or reaches out to you, you should take them seriously and remove lethal means. In addition, The National Suicide Prevention Lifeline (2022b) warns that if a friend tells you about a plan to hurt themselves, don't keep it a secret. In many of the suicide survivor narratives on livethroughthis.org, survivors discussed the harmful effects when friends and family members consistently called out the suicidal person for seeking attention, which often led to the person with suicide ideation making an attempt to take his or her life.

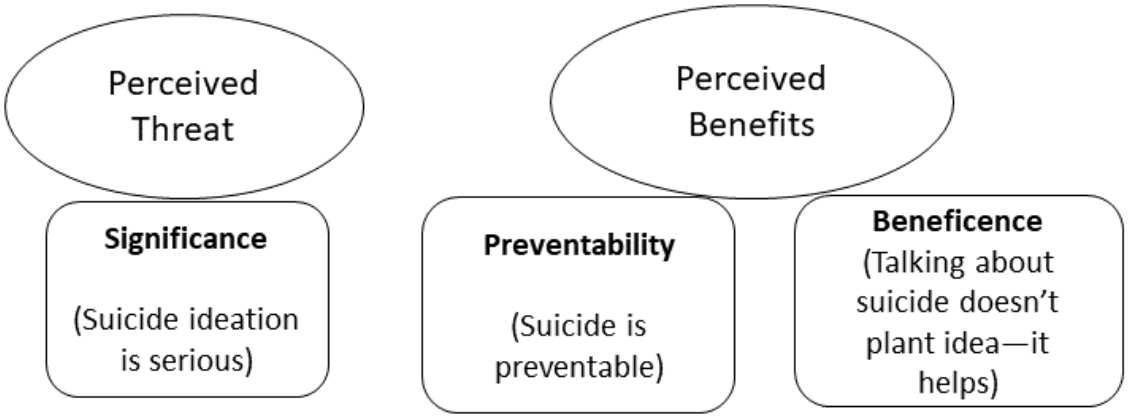
Consequently, the *significance* of suicide threat addresses the common misconception that someone talking about suicide or engaging in pre-suicidal behavior is not serious about taking his or her life. One of the precursors to engaging in a healthy behavior in the health belief model is perceived seriousness of the health threat and the susceptibility of an individual to that threat, resulting in a perceived threat (Rosenstock et al., 1988). When a suicide gatekeeper understands the significance of suicidal talk and/or warning signs—that these indicate a person is genuinely considering the action of taking his or her life—then a potential suicide gatekeeper may perceive the threat that suicide presents to a loved one and be more likely to act on that person's behalf. In addition, counselors interviewed in this study discussed the need to assess

lethal means and other behaviors that indicate whether a person may be inclined to take his or her life. Messages should emphasize that suicidal talk may be acted upon (it is serious and real), and one counselor also added that "certain behaviors such as giving away items or having a suicide plan (with lethal means) could mean that a person is inclined to take their life." Thus, messages that highlight the seriousness of suicide threat and susceptibility to suicide of their peers may help potential suicide gatekeepers perceive the threat that suicide poses to their friends.

Ultimately, the concepts of *beneficence, preventability,* and *significance* relate to constructs in the health belief model and are informational constructs that may be useful in affecting the behaviors of suicide gatekeepers (see Figure 3). While the misconceptions themselves might be categorized as barriers, message constructs that focus on the perceived threat of suicide as well as the perceived benefits of intervening (suicide can be stopped and talking about it helps someone with suicide ideation) may be effective at motivating intervention, or at least influencing a person's expectation that he or she will intervene.

Figure 3

Health Belief Model and Informational Construct Connections



Self-Efficacy, Response Efficacy, and Behavioral Expectation

Self-efficacy is an individual's belief in his or her ability to perform a behavior, and in the health belief model, perceived benefits, perceived threat, and self-efficacy are aligned, with each having (at least in a recent model format) a same-level influence on likelihood of engaging in a health promoting behavior (Figure 2) (Glanz et al., 2008). Self-efficacy was an important concept in the material that was examined. Some examples are provided:

- We can all recognize and reduce the risk of suicide (Trevor Project, n.d.).
- Identifying warning signs allows you to help (National Suicide Prevention Lifeline, 2022b).
- You can help keep your friend safe if you remove ideas and means (988 Suicide & Crisis Lifeline, 2021).

Every interview participant discussed the need for misconceptions to be corrected in order for suicide gatekeepers to feel that they have the capability to influence a peer in a positive way. Thus, in the developing model, self-efficacy was placed between the health belief model constructs and behavioral expectation, as these concepts could possibly mediate the relationship between the constructs and behavior.

Response efficacy, the belief in the effectiveness of the behavior to be performed (Lewis et al., 2010), has strong implications in the developing model in relation to intervening on behalf of a peer and being an integral piece in preventing suicide. Some examples from the material examined include the following:

- Messages must include not only the actions people should take, but they should highlight the behavioral efficacy of taking action because preventative actions work (National Action Alliance for Suicide Prevention, n.d.).

- Talking about suicide, especially when it follows the question-persuade-refer (QPR) method helps your friend and makes it safe for them to talk to you about suicide (New England Public Media, 2019).
- When you reach out to someone with suicide ideation, you empower them to fight their suicide ideation (The Trevor Project, 2011).

Both response efficacy and self-efficacy show indication of being critical concepts in the next step—suicide gatekeeper behavior. Behavior of suicide gatekeepers should include detecting possible suicide ideation and taking action to engage a peer and connect that person to resources. However, not everyone will be presented with an opportunity to act as a suicide gatekeeper. In fact, even one of the interview participants with a counseling license and background had never directly had to intervene on behalf of a suicidal person. Although this was uncommon among the interview participants (not having the experience of intervening on behalf of a person with suicide ideation), the fact that some people may never encounter a peer or family member with suicide ideation is a possibility. The idea of behavioral expectation is a concept that captures individuals' willingness to perform behaviors *if* they are presented with that behavior in the future (Warshaw & Davis, 1985). Maruping et al. (2016) emphasizes that behavioral expectation takes in to account a variety of external factors and is a valuable measure of someone's intent to take action given a unique opportunity. Therefore, the developing model for social media message design for suicide gatekeepers includes the step of behavioral expectation before a person performs the behavior.

Engagement

One element that has been studied in social media research is that of engagement—behaviors that include liking, sharing, or commenting on a message (Streklova & Damiani, 2016).

Kim and Yang (2017) describe social media behaviors as three levels that include consuming, contributing, or creating. While consuming social media is a low involvement form of behavior, and creating is the highest, contributing "is the interactions between users and contents as well as among users, which include participating in forums or commenting on posts" (p. 442). Liking, sharing, and commenting are behaviors on the contributing level. Kim and Yang further defined these behaviors through research that suggested how these behaviors are triggered in the message receiver:

- A *like* is affectively triggered (our emotions motivate us to take action).
- A *comment* is cognitively triggered (the way we think about the message motivates us to take action on it).
- A *share* can be either affectively or cognitively triggered, and sometimes is a combination of both.

As mentioned in the literature review, Guidry et al. (2020) found support that using constructs based on the health belief model in social media messages were effective at increasing engagement. On the other hand, engagement fluctuated on the social media messages used in the current study, with those highlighting self-efficacy consistently receiving more than 100 types of engagement (liking, sharing, or commenting on the message). This study's research questions did not focus specifically on the link between message constructs and social message engagement in a textual analysis, and therefore it does not suggest any links between message construct and social media message engagement in this part of the study. However, some of the

highest performing social media messages are shown in Table 1. For most of the messages examined, liking (or favoriting) was the highest number out of the three types of engagement (liking, sharing, commenting); Table 1 features messages aimed at suicide gatekeepers that received at least 200 likes (or some type of emoji reaction such as a "wow," "sad," or "care," in the case of Facebook messages) on the American Foundation for Suicide Prevention Facebook page and National Suicide Prevention Lifeline Facebook page during a three-month period (April-June).

Table 1

Examples of High Engagement Social Media Messages

Source	Message	Images or Links	Engagement
American Foundation for Suicide Prevention (Facebook)	Tag someone below who might need to hear this today! Artwork by @allyblaireco (on Instagram)	Text-based positive image	307 likes/etc. 123 shares
American Foundation for Suicide Prevention (Facebook)	If I say I'm suicidal, take it seriously and don't assume I want attention.	Link to article 24 real ways to help someone who's feeling suicidal	213 likes/etc. 109 shares
American Foundation for Suicide Prevention (Facebook)	If we want to reduce the suicide rate, simply telling people to get help isn't enough.	Link to article with same title	652 likes/etc 212 shares 102 comments
American Foundation for Suicide Prevention (Facebook)	This #MemorialDay, we're reminding you of suicide prevention resources specifically for military members and veterans.	Resource infographic	268 likes/etc. 458 shares 2 comments
American Foundation for	COUNTDOWN TO 988	Image highlighting 988 info	452 likes/etc. 473 shares

Suicide Prevention (Facebook)	This new 3-digit number for mental health, substance use and suicidal crises is available in just 30 days. There's still more work to do to be ready to help every person in a crisis. Learn more about how we can #ReimagineCrisis at reimaginecrisis.org		3 comments
American Foundation for Suicide Prevention (Facebook)	"I was the student who had it all together."	Link to The Mighty: I was the "straight-A" student who wanted to kill herself	312 likes/etc. 62 shares 32 comments
National Suicide Prevention Lifeline (Facebook)	You never know what someone else might be going through. #BeThe1To check-in on a friend or a loved one today #MentalHealthMonth : @lizandmollie on Instagram	Illustration of "What someone is carrying" vs. "What we see"	721 likes/etc. 751 shares 17 comments
National Suicide Prevention Lifeline (Facebook)	Some warning signs may help you determine if a loved one is at risk for suicide, especially if the behavior is new, has increased, or seems related to a painful event, loss, or change. Learn the warning signs of suicide and how to help someone by visiting https://bit.ly/3mXVKC7.	Nothing additional	568 likes/etc. 387 shares 32 comments

Although social media engagement is a collection of behaviors, the act of engaging with a message through liking, sharing, or commenting on it does not necessarily result in a person expecting or intending to behave in the way the message encourages; that is, one can easily like, share, or comment on a message without taking any further action on what the message asks you to do (Korda & Itani, 2013). Yet, social media message engagement can suggest initial attention to a social media message and even motivation from that message (Dolan et al., 2016; Edney et al., 2018). Consequently, the influence of social media message engagement is included in this model because this concept offers further opportunity to examine what type of message construct is most likely to engage its audience and if that engagement influences behavioral expectation.

Empathy Appeals

Through the interviews and the examination of the social media messages, the data pointed to empathy as an emotional response that encourages suicide gatekeepers to detect suicidal intention and take action on behalf of a peer (engage and connect). Empathy can be defined as an action of "understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another of either the past or present without having the feelings, thoughts, and experience fully communicated in an objectively explicit manner" (Merriam-Webster, n.d.). One licensed professional counselor stated, "Conversation about suicide needs to come from a place of empathy and compassion. This includes saying, 'I want to get you help,' and taking the person seriously." The National Suicide Prevention Lifeline (2022b) attempts to help readers understand the despair of suicidal friends and family members: "People having a crisis sometimes perceive their dilemma as inescapable and feel an utter loss of control." A Ted Talk video features a speaker who discussed how hard it can be to ask for help, but that "the bigger part of me said no one would understand and it would make me a burden" (TEDxYouth@Lancaster, 2017).

Every interview participant discussed the importance of considering the feelings of those with suicide ideation, which included despair and being a burden to others. In making an appeal to suicide gatekeepers based on empathy, these interview participants emphasized that a person with suicide ideation who is ignored may feel isolated and hopeless, and that potential suicide gatekeepers can be made aware of this through messages and training. On the other hand, those with suicide ideation who are engaged in conversation by a friend or family member in an empathic manner and connected to resources will have the opportunity to discuss their thoughts and feelings and perhaps abandon plans for suicide.

On this note, all interview participants were asked about making an appeal to suicide gatekeepers based on fear or guilt—was it fair to express in a message that someone who does not intervene on behalf of a friend might lose that friend to suicide? All but one of the participants said fear or guilt appeals were not appropriate in a suicide prevention situation. One participant expressed it like this: “While suicide is preventable, not all suicides will be prevented.”

Four of the interview participants further emphasized that the person who takes his or her life is the one responsible for taking his or her life. Fear or guilt appeals that place blame on the suicide gatekeeper for no action or ineffective action are not helpful and can even be psychologically harmful. A video from the Trevor Project (2011) further emphasizes in its video on intervention that “you are not responsible for someone taking a life.” The only counselor who mentioned that fear appeals could be appropriate highlighted the use of fear to support the seriousness of a suicide ideation, but stated that a fear appeal should be used with caution. In fact, most of the literature examined that focused on warning signs emphasized the seriousness of suicide and that those who show signs of suicide ideation may in fact take their life. But a line

existed between using a more direct fear appeal and emphasizing the seriousness of suicide ideation; fear appeals were determined during the interview process to be more directed at placing responsibility on the potential suicide gatekeeper, whereas emphasizing the seriousness of suicide was determined to be a necessary effort against misconception without directing responsibility at anyone in particular.

The discussion of making an effective appeal to suicide gatekeepers through empathy showed opportunity for using gain and loss framing. For example, in considering how loss- and gain-framed messages are designed (O'Keefe & Jensen, 2007), one might choose words that emphasize a peer's loneliness/despair if no one engages with him or her (loss condition where undesirable outcome comes from not performing a positive behavior); this wording would be different from choosing words that emphasize the connection and hope that a peer feels when someone engages with them (gain condition where desirable outcome comes from performing a positive behavior). The possibility of an empathy appeal framed with the concepts of gain or loss are discussed in further detail in the next chapter. The challenge of such a design was recorded by the researcher in this memo:

> There is certainly room to examine gain/loss, but the specifics are still materializing and being refined. You must be careful with loss because no one should feel guilty about someone taking their life (see Trevor Project CARE video). On the other hand, there is a necessity and expectation that someone will intervene because they care and can help their friend (gain). Posts continue to vary between awareness of friends' needs/warning signs and knowledge of what to do next (start conversation/provide resources).

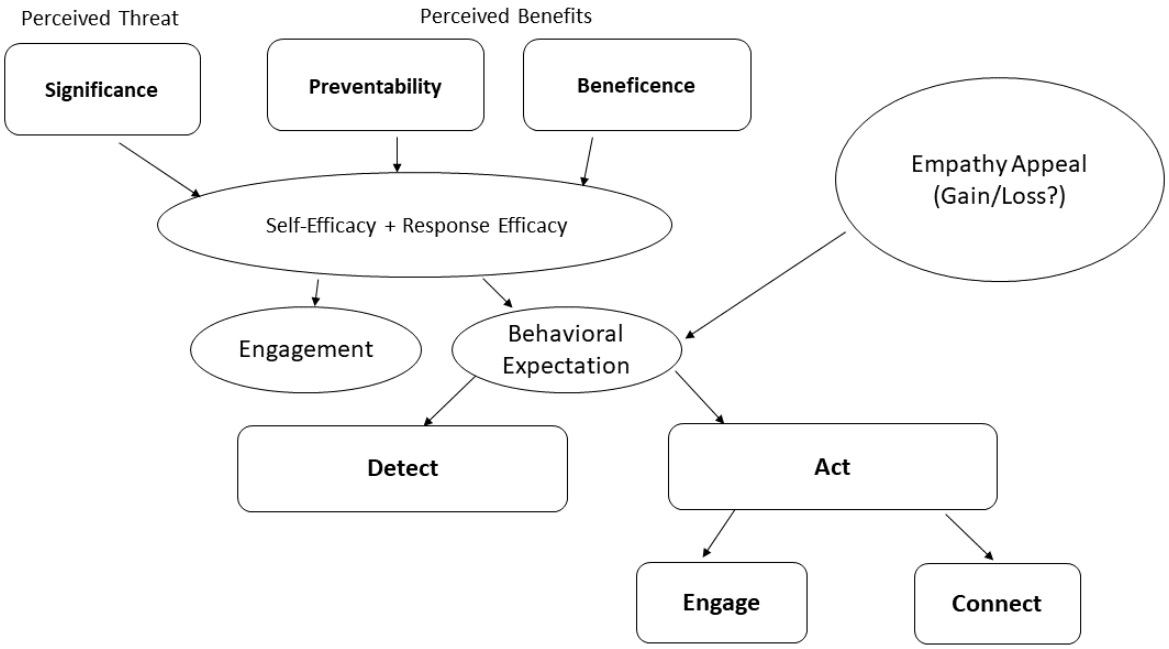
Therefore, although gain and loss framing of an empathy appeal has potential, the complexities if its use must be noted and considered in any messages created or tested using these concepts.

Final Social Media Message Design Model for Suicide Gatekeepers

Based on the findings from the GT method and the theoretical connections discussed above, this study proposes a formal model for consideration in social media message design for suicide gatekeepers (Figure 4). The informational constructs of significance, preventability, and beneficence were confirmed through constant comparative analysis, and the opportunity for gain and loss appeals were emphasized in both the interviews and extant documents. Engagement on social media messages that highlighted self-efficacy showed the opportunity to further test what influences social media message engagement and whether that engagement has any association with behavioral expectation. While a more precise effect requires further testing (which takes place in the second part of this research), these elements emerged as vital to designing messages that will gain awareness of young people and be brief enough to fit into a social media message format.

Figure 4

Proposed Model of Social Media Message Design for Suicide Gatekeepers



Specificity to Social Media Messages

Considering the model above, the concepts and their positioning in the model could be perceived as being critical to message design beyond a social media message. But what specifically and uniquely makes this a model for social media messages? All of the academic articles reviewed in this part of the study (see Appendix A) discussed the complexity of suicide gatekeeper training and the task of imparting knowledge during that training—usually in a timeframe of several hours to several days. Yet, one can only offer so much in a social media message due to the need for brevity (Gligorić et al., 2018). Links to information and videos, as well as infographics, can be included to provide learning opportunities for those reading social media messages, but what information, in its briefest format, has the potential to promote response efficacy, self-efficacy, and behavioral expectation of suicide gatekeepers?

This model highlights the areas that should be considered—elements of the health belief model that are specific to encouraging suicide gatekeeping, as well as empathy appeals, which should in turn influence response efficacy, self-efficacy, and behavioral expectation. The behaviors that are necessary and showed commonality throughout the data sources that included detecting suicidal behavior and engaging with suicidal peers and connecting them to resources were important elements in social media messages and were further highlighted by interview participants and online training material and videos. While this model could be further developed and utilized for more complex message design for suicide gatekeepers, the social media model entails the parsimony necessary for designing a brief and succinct message.

Data Saturation

GT research entails a process by which the researcher collects and analyzes data simultaneously; this allows the researcher to make more targeted data collection decisions as concepts begin to clarify in the course of the study (Glaser & Strauss, 1967). This study began with scheduling in-depth interviews with counselors and professionals from suicide prevention agencies and examining social media messages from those organizations as well as other suicide prevention social media accounts. During the course of this analysis, online videos and training material, as well as suicide survivor stories and academic articles, were collected. The first third of the data collection process entailed the emergence of the first model (Figure 1), which emphasized that messages should focus on providing information on detecting suicide ideation in peers and taking action that engaged these peers in conversation as well as connected them to resources. The next part of the analysis focused on a theme that continued to surface—the need for correcting misconceptions in order to influence positive response efficacy and self-efficacy in suicide gatekeepers through perceived threat/benefits of action. This resulted in the final model

proposed in Figure 4. The final part of the analysis ensured data saturation, whereby the researcher continued to review data and search for any form of disjuncture (Glaser & Straus, 1967). While one case of disjuncture is discussed above (in regards to the appropriate use of fear appeals), this research found that interview participants, training material, social media messages, academic sources, and survivor stories all showed considerable support for the final model.

Other Items of Note or Further Exploration

In addition to the possibility of changing the term *suicide gatekeeper* to one that transfers less responsibility to someone who might intervene, interview participants and extant documents emphasized several other areas that may be opportunities for further exploration in social media design. Although these areas are not the focus of the current study, they do have implications for this topic and are listed here.

- **Sources of suicide gatekeepers** (potential audience of social media messages for suicide gatekeepers): Interview participant opinions were mixed on who might be most influential in a young person's life. Peers, parents, teachers, and counselors were all identified as people with potential impact. Suicide survivors mentioned a variety of people who had positive influences on them. Therefore, the target audience of social media messages for suicide gatekeepers is an area still in need of examination.
- **Level of gatekeeping knowledge in message**: Several interview participants emphasized the importance of suicide intervention training, and counselors discussed that engaging in an effective conversation or listening to someone does require some knowledge of asking questions such as "Are you thinking of killing yourself" instead of "You're not thinking of killing yourself, are you?" However, interview participants agreed that any attempt by a

suicide gatekeeper involving empathy would be better than ignoring spoken or behavioral signs of suicide. The strategy of providing links to further information in brief social media messages is an important piece that could potentially influence self-efficacy of the message receiver.

- **Media platforms**: No specific traditional or digital media platform was identified as most effective by the interview participants, although Tik Tok and Instagram were identified as possible social media platforms with maximum reach of young people. Most interview participants underscored that information and calls to action should be available in many other communication formats beyond social media messages, including interpersonal and group training, billboards, television shows, and other digital media outlets.

Ultimately, research for reaching suicide gatekeepers is still quite novel and in need of considerable focus. The first part of this study was a rigorous examination that demonstrated a great deal of opportunity for further expansion using multiple research methods. The resulting Model of Social Media Message Design for Suicide Gatekeepers is a first step in designing and building the most effective messages for suicide gatekeepers, but further testing and examination of this model can help researchers and practitioners alike better define and execute the communication process of reaching and motivating suicide gatekeepers.

Chapter 5: Social Media Message Design Literature and Research Questions

Social media are critical message platforms for research in suicide prevention, because they have "created opportunities for interpersonal engagement, interactivity, and dialogue that are qualitatively different from those offered by traditional websites" (Lovejoy & Saxton, 2012, p. 339). The effectiveness of messages in suicide prevention campaigns is an area that needs attention, with Prikis et al. (2019) stating: "Evaluations should explore the nature of given campaigns in detail—in particular the messaging contained within them—in order to tease out which messages work well and which do not" (p. 402).

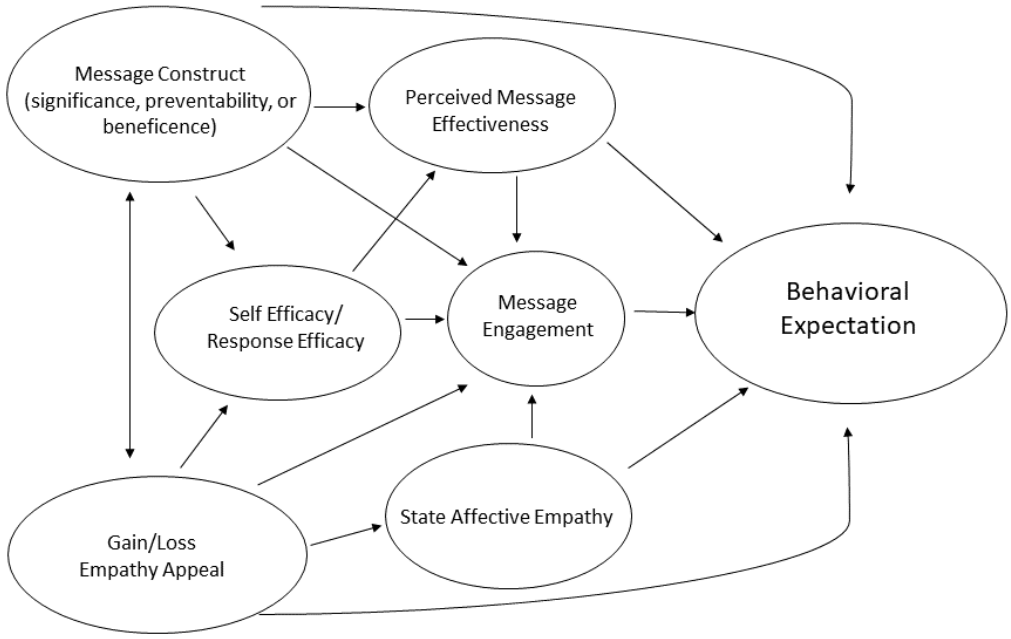
The first part of this study, although steeped in prior literature, entailed exploratory research through the use of grounded theory (GT) methods. The hypothetical model built during that process required further examination through experimental design that would enable the researcher to best position the proposed concepts in the model. Consequently, the study asked a second series of research questions to best solidify or revise the emerging model (see Figure 5). This model is slightly altered from the model presented in Chapter 4 (Figure 4) because it examines several more possible pathways and adds state empathy in order to better test how the constructs influence one another. While social media and online training materials showed clear support of the components of knowledge needed by suicide gatekeepers (indicated in the lower half of the model that included concepts of detect, engage, and connect), this next part of the research will focus on what plays directly into suicide gatekeepers' expectation of a certain behavior. Thus, in the second part of this study, social media messages were compared in an experimental design to test the efficacy of the core variables identified in the GT research. These include using constructs in social media messages for suicide gatekeepers that include the

significance of the suicide threat, the preventability of suicide, and the beneficence of discussing suicide.

In addition, the experimental method also examined the effect of a gain- or loss-framed empathy appeals, as well as the influence of several mediating variables, including self-efficacy, response efficacy, state empathy, and social media message engagement (liking, sharing, or commenting on a message) (Streklova & Damiani, 2016). Analyzing the influence of a particular type of message can be a complex process, which means the research must consider the possible influence of mediators, variables that represent "the generative mechanism through which the focal IV is able to influence the DV of interest" (Baron & Kenney, 1986, p. 1173). Preacher and Hayes (2004) describe mediation as a process "by which some variables exert influences on others through intervening or mediator variables" (p. 879). Therefore, this research will examine several concepts that may further influence suicide gatekeeper's perceived message effectiveness and behavioral expectation. Consequently, the literature review examines 1) definitions of desirable message outcomes, including social media message engagement; 2) the background and integration of the health belief model in messages; 3) the effectiveness of using experimental design to test messages, and 4) other social media design elements that could impact message attention and effectiveness.

Figure 5

Conceptual Model to Test for Social Media Message Design for Suicide Gatekeepers



Definition of Message Outcomes

Before this study predicts and asks questions about message outcomes, the research will first clarify through the literature the definition of the following concepts (desirable message outcomes): perceived message effectiveness, behavioral expectation, self-efficacy, response efficacy, and social media message engagement.

Perceived Message Effectiveness

Message receptivity has been defined as a message's persuasiveness and believability as evaluated by the message receiver (Dillard et al., 2007). However, the concept of message receptivity can be further refined into the concept of perceived effectiveness, in which message receivers evaluate whether a message is powerful, is informative, is meaningful, is worth remembering, and grabbed their attention (Zhao et al., 2016). Further, Capella (2018) addresses O'Keefe's (2018) assertation that perceived message effectiveness is not a useful tool for the

persuasive impact of messages; Capella asserts that perceived message effectiveness is predictive and has persuasive impact on behavioral outcomes, and this was demonstrated in several studies on anti-smoking messages (Bigsby et al., 2013; Kim et al., 2017; Morgan et al., 2018). Moreover, measures of perceived effectiveness coincide with health communicators' desires for social media messages to gain attention, deepen engagement, and enhance interaction with message receivers (Leung et al., 2017). Therefore, perceived message effectiveness in this study will focus on whether the message is perceived by the message receiver as powerful, informative, meaningful, worth remembering, and attention grabbing, in accordance with the elements proposed by Zhao et al. (2016).

Behavioral Expectation

In considering a person's intention to perform a behavior, the accuracy of that intention resulting in a behavior should be discussed. Behavioral intention has been described as an antecedent to performing a behavior (Ajzen, 1991). While studies have looked at behavioral intention in regards to message receivers' intention to take action (Cox, 2020), Warshaw and Davis (1985) suggest that behavioral intention and behavioral expectation should be further disentangled:

> We propose that behavioral expectation is the more accurate overall predictor since many common behaviors are unreasoned (i.e., mindless or habitual) behaviors, goal-type actions, or behaviors where the individual expects his or her intention to change in a foreseeable manner. These are all cases where present intention (BI) is not the direct determinant of behavior but where the individual may be capable of appraising whatever additional determinants exist and of including them within his or her behavioral expectation. (p. 213)

Ultimately, Warshaw and Davis (1985) supported that behavioral expectation was more likely to predict self-reported performance than behavioral intention. More recently, Maruping et al. (2016) examined behavioral expectation in the acceptance and use of technology and found that behavioral expectation "captures the influence of external factors (e.g., situations and/or environmental factors) that may augment or inhibit one's ability to perform a desired behavior" (p. 632). Therefore, instead of asking questions in a research study about a person's plan, intention, or prediction of future behavior, asking questions concerning likeliness and expectation of a behavior may be stronger indicators of the person performing the behavior in the future.

Self-Efficacy

Constructs from the health belief model include the concept of self-efficacy, the individual's belief in his or her ability to perform that behavior (Rosenstock et al., 1988). Self-efficacy has the potential to influence intention and behavior of taking a health action, although results are mixed on its strength depending on the particular health behavior in question; for example, self-efficacy may have a larger effect on physical activity behaviors compared with dietary behaviors (Zhang et al., 2019). Self-efficacy is a person's perceived ability to take action, and the past can affect our thoughts about our capability to perform an action (Bandura, 1977). Therefore, self-efficacy may have the opportunity to influence perceived message effectiveness and behavioral expectation.

In the first part of the study, the GT method found support for the concept of self-efficacy as a precursor to behavior. As previously mentioned, the health belief model aligns the concepts of perceived benefits, perceived threat, and self-efficacy, with each of the three influencing someone's likelihood of engaging in a health promoting or disease preventing behavior (Glanz et

al., 2008). Therefore, the concept of self-efficacy can be a strong indicator of someone's expectation of performing a future health promoting or disease preventing behavior.

Response Efficacy

Response efficacy is an individual's perception that a message provides useful strategies and that these strategies will be effective (produce results—or at least have the capability of producing results) (Bae, 2021). Green et al. (2020) discusses how the original constructs of the health belief model expanded to include response efficacy, which can be even more simply defined as the belief in the effectiveness of a health behavior. Support for the possibility that response efficacy helps people overcome their fear of taking action demonstrates that it is a critical concept in the health behavior process (Lewis et al., 2010).

In the first part of this study, response efficacy was emphasized by both suicide prevention professionals and professional documents as an important element for messages that would reach and convince suicide gatekeepers to intervene. Thus, the concept of response efficacy may also have an opportunity to influence suicide gatekeeper's perceived message effectiveness and behavioral expectation.

Social Media Message Engagement

Engagement is a term that can be used in a number of ways that include cognitive, affective, and behavioral responses (Purcell, 2014). However, engagement in regards to social media behavior has been defined as a documented digital action in response to a specific message, such as liking, sharing, or commenting on a message (Streklova & Damiani, 2016). These behaviors have different triggers, which have been described as an affective behavior for *liking*, a cognitively triggered behavior for *commenting*, and either affective, cognitive, or a combination of both for *sharing* (Kim & Yang, 2017):

Engagement behavior with a social media message cannot yet be linked to intention, expectation, or performance of the behavior called for in a social media message, but as previously mentioned, questions following social media messages may provide knowledge on people's attitudes toward the message content and behavioral intention or expectation (Korda & Itani, 2013). Engagement as a behavior can signal attentiveness to a message and motivation prompted by a message (Dolan et al., 2016; Edney et al. 2018). Therefore, it is a message outcome that deserves examination in this study.

State Empathy

Empathy is an important variable in behavior research and includes perspective taking, which "indicates the ability of an individual to take someone else's cognitive point of view" (Egbert et al., 2014, p. 464). This suggests empathy as cognitive empathy may be useful to measure in this particular situation, because it "refers to perspective-taking and involves recognizing, comprehending, and adopting another person's point of view" (Shen, 2010b, p. 506); placing oneself in another person's circumstances has shown to be an antecedent to shared emotion, a foundation for empathy.

Shen, (2010b) further explains the concept of state empathy during message processing as a "process where perception of the characters' state automatically activates the recipient's vicarious experience of their state, situation, and object, which automatically primes and generates the associated automatic and somatic responses that precede persuasion outcomes" (p. 504). State empathy is a process in which we undertake an understanding of others and their circumstances; although it is different from trait empathy (which can be described as someone's innate empathy and significantly impacts state empathy), state empathy takes place during message processing and has been positively linked with message persuasiveness (Shen, 2010b).

Thus, measuring state empathy of message receivers is useful in this study to better understand what messages may be persuasive for suicide gatekeepers.

Health Belief Model Constructs and Core Concepts

The research from the GT study showed evidence of health belief model constructs in correcting cases of misconception about suicide seriousness, inevitability, and ideation. These linked with constructs in the health belief model, including the concept of significance linked with perceived health threat, and the concepts of preventability and beneficence linked with perceived benefits of action. However, social media messages are inherently short (Gligorić et al., 2018), and the prior research does not designate which of the constructs—significance, preventability, or beneficence—will have the most positive effect on the desirable message outcomes in the model. Therefore, this research asked the following:

> **RQ1:** Which of the three message constructs found in the model of social media message design for suicide gatekeepers has the most positive effect on message receiver's a) perceived message effectiveness, b) behavioral expectation, c) self-efficacy, d) response efficacy, and e) likelihood of social media message engagement?

In addition, recent research links constructs from the health belief model, including self-efficacy, with higher engagement in health-related posts (Guidry et al., 2020). Further, self-efficacy has demonstrated a possible influence on the willingness of a young adult to reach out on behalf of a depressed friend (Egbert et al., 2014). Because the positioning of self-efficacy remains in question for the model of social media message design for suicide gatekeepers, the experiment will be used to further examine its place in the model. Therefore, this study also asked the following:

RQ2: Does perceived self-efficacy mediate the relationship between message construct and message receiver's a) likelihood of social media message engagement, b) perceived message effectiveness, and c) behavioral expectation?

Response efficacy has also been shown to help people accept health-behavior related messages by emphasizing the usefulness of that behavior (Bae, 2021). Thus, the study also asked the following:

RQ3: Does perceived response efficacy mediate the relationship between message construct and message receiver's a) likelihood of social media message engagement, b) perceived message effectiveness, and c) behavioral expectation?

Moreover, social media message engagement (through liking, sharing, or commenting), although not evidence of behavioral expectation or actual behavior, can be seen as a sign of message attention (Edney et al., 2018). Thus, this study also examines how perceived message effectiveness interacts with and influences social media message engagement behavior, as well as the influence of perceived message effectiveness and likelihood of social media message engagement on behavioral expectation. Although the researcher notes that these research questions are outside the scope of the experiment, analyzing the data to explore these next few research questions may help better determine where research may best focus to establish the most accurate construction of the proposed model.

RQ4: Does perceived message effectiveness mediate the relationship between self-efficacy and a message receiver's a) likelihood of social media message engagement and b) behavioral expectation?

RQ5: Does perceived message effectiveness mediate the relationship between response efficacy and a message receiver's a) likelihood of social media message engagement and b) behavioral expectation?

RQ6: Does likelihood of social media message engagement mediate the relationship between a message receiver's self-efficacy and behavioral expectation?

RQ7: Does likelihood of social media message engagement mediate the relationship between a message receiver's response efficacy and behavioral expectation?

Experimental Design and Health Message Framing

Message framing is described as "a technique that shapes perceptions of the outcomes of the promoted behavior" (Cheng et al., 2011). It has also been defined as "presenting information in a specific way to influence or change the recipient's behavior" (Gursoy et al., 2022, p. 3). Framing messages has been reported to influence the persuasive value of a message (Smith & Petty, 1996) and may ultimately affect the way people think and behave (Cheng et al., 2011; Kim & Kim, 2014; Zhang et al., 2018). Experimental research is a useful method for testing message framing because it sets up an opportunity to design a process that can provide support for a cause (framing) preceding an effect (attitude, receptivity, and behavioral expectation); this an important element in establishing a cause-effect relationship among variables (Grabe & Westley, 2003).

Gain- and Loss-Framed Messages

A specific area of message framing concerns gain- and loss-framed messages, which has roots in prospect theory; simply put, prospect theory determines how people make choices based on their valuation of risk and reward, and investors sometimes choose perceived gains due to the fact that losses may have a heavier emotional impact (Kahneman & Tversky, 1979). In fact, "The

prospect theory editing operation…by which a decision maker's reference point is determined, can have important impacts on the perceived disutility of the test" (Schwartz et al., 2008, p. 174). Prospect theory has stimulated a wealth of research into gain versus loss framing of messages (Barberis, 2012), including messages in health communication. In health communication, health behaviors that are considered "safe" may be more heavily influenced by gain-framed messages (Schwartz et al., 2008).

Within the health communication area, experimental design has been used to examine gain- and loss-framed messages, which have been tested in regards to physical activity and alcohol consumption, with gain-framed messages perceived as most credible, especially messages with expert sources (Borah & Xiao, 2018). The idea of gain and loss frames certainly comes with a great deal of complexity, with mixed results for gain and loss framing for various health-related behaviors. Loss-framed messages may be more likely to decrease behaviors known to have risky consequences (Cheng et al., 2011; Eguren et al., 2021). In contrast, gain-framed messages may be more likely to encourage behavioral intention of safe behaviors (Kim & Kim, 2014). Another recent study that focused on social media messages found that the reception of gain- and loss-framed messages aimed at parents discussing sexual activity with their preteens may depend on a parent's goals, with parents who are more concerned with protecting their child being more receptive to gain-framed messages and parents who are more concerned with their children's success being more receptive to loss-framed messages (Cox & Wong, 2022). Ultimately, a number of factors may play a part in mediating or moderating message frames such as gain and loss frames, demonstrating the challenge of testing different types of messages in a controlled experiment and the care that should be taken in explaining how each variable will be tested.

To further demonstrate this complexity, O'Keefe and Jensen conducted two studies using loss and gain framing; the first study was conducted on disease prevention behaviors (2007) and the second on disease detection (2009). For disease prevention, a meta-analysis suggested that gain-framed appeals (those that list advantages of compliance with the behavior suggested by the message) are statistically more persuasive than loss-framed messages (O'Keefe & Jensen, 2007). However, on further inspection, the researchers found that the difference had a small effect size attributable to a larger effect size for gain-framed messages advocating dental hygiene, but not for messages advocating safer sex, skin cancer prevention, or diet and nutrition behaviors. In addition, in another meta-analysis, O'Keefe and Jensen (2009) found that when it comes to disease detection, loss-framed appeals have the edge, although this was mostly due to loss-framed messages concerning breast cancer screenings, and the authors proposed that gender may play a role (suggesting that women were more concerned about the consequences of not getting screened). In a situation such as suicide gatekeeping, the idea of prevention may carry a stronger rationale, but the reality of small effect sizes should be a consideration for any experiment that examines gain or loss framing.

When contemplating an experiment for gain or loss message framing, one should consider the kernel state of a message. O'Keefe and Jensen (2009) discuss the kernel state in terms of gain and loss framing, which is what the message uses as a benefit or consequence. For example: "If you use sunscreen, will your skin be more attractive (desirable outcome) or will you avoid skin cancer (undesirable outcome)." O'Keefe & Jensen (2007) discuss four possible combinations of gain and loss framed messages:

- Gain-framed: If you do this, you will get this desirable outcome.
- Gain-framed: If you do this, you will avoid this undesirable outcome.

- Loss-framed: If you don't do this, you will avoid this desirable outcome.
- Loss-framed: If you don't do this, you will get this undesirable outcome.

Ultimately, testing a message in experimental design will need to consider the kernel state in a gain- or loss-framed message. Because disease prevention message research shows support for gain-framed messages highlighting benefits gained from prevention behavior, this research will focus on getting (gain) and losing (loss) the desirable outcome. This also avoids using fear or placing undue guilt on the message receiver in terms of responsibility for a life-taking action by a peer with suicide ideation. In the model, the empathy appeal is positioned as influencing message engagement and, more importantly, a suicide gatekeepers' behavioral expectation. Therefore, this research asked the following.

RQ8: Is a gain-framed or loss-framed empathy appeal more likely to have a positive influence on a message receiver's a) behavioral expectation, b) state empathy, and c) likelihood to engage with the social media message?

In addition, a gain- or loss-framed message may interact with the health construct (e.g., does a message with a beneficence construct perform better when it is designed as a gain-framed message?). Therefore, this study will look for interaction among message construct and gain- or loss-framed messages.

RQ9: Does a gain-framed or loss-framed message interact with the effect of the message construct on message receiver's a) self-efficacy, b) response efficacy, c) perceived message effectiveness, d) likelihood of message engagement, and e) behavioral expectation?

Finally, the concept of state empathy should be examined for its influence on message engagement behavior and behavioral expectation. The final research question addresses this:

RQ10: Does state empathy mediate the relationship between message frame (gain/loss) and message receiver's a) likelihood of message engagement and b) behavioral expectation?

Other Social Media Design Elements

Other factors that may impact the perception and effect of a social media message have been studied over the past decade. This study—for the sake of time, cost, and parsimony—could not test each of these variables. However, each of these variables influences the way a message is designed and possibly received and attended to; therefore, each of these variables was controlled in the experimental conditions to best prevent confounding.

Visual Elements

Images in a social media message may increase engagement with that message; in fact, the types of images used can affect the persuasive value and reception of a message (Edney et al., 2018). For example, distressing imagery may cause audience members to avoid attention to messages (Brown & Richardson, 2011). Therefore, images are a variable that must be controlled in research that is meant to test the text of a message. Thus, images were not used in the messages created for this experiment.

Platform

The top three social media platforms used by Americans are YouTube (81%), Facebook (69%), and Instagram (40%); in the 18 to 29 year-old-age group, the top three are the same, but the percentages change to 95% for YouTube, 71% for Instagram, and 70% for Facebook (Pew Research Center, 2021b). YouTube is primarily a video based-medium with an assortment of uses including entertainment and information sharing; Instagram's popularity relies on its sharing of user's images (Youngblood, 2021). Therefore, neither of these rely primarily on text-

based messages. Facebook, on the other hand, includes a combination of text, links, images, and videos (Youngblood, 2021). Therefore, based on this and its continuing popularity and familiarity, it is a useful template for presenting text-based messages.

Social Media Message Brevity

Researchers have been able to link the success of messages through wording, such as framing, but they have also linked message length to success. For example, a commercial study suggested that "tweets" on Twitter containing less than 100 characters led to 17% higher message engagement (Shleyner, 2018). Another study that analyzed brevity and message engagement that examined shorter and longer tweets written by the same user and containing the same hashtag showed a mild positive effect for shorter tweets (Gligorić et al., 2018).

Message credibility can be examined in relation to message length, and this could impact the receptivity of a message and influence behavioral expectation; for example, longer messages may seem more credible to those reading them (Kwasniewicz et al., 2021). Also, message length in online banner ads has been linked with click-through rates to a website, in which longer messages are associated with higher click-through rates (Robinson et al., 2007). Therefore, the length of a social media message in this research is controlled in order to prevent it from being a confounding variable.

The importance of controlling for other variables in an experiment is critical to demonstrating possible cause and effect in the relationship between independent variables and dependent variables (Grabe & Westley, 2003). In the next section, the methods for conducting this research's experiment and the control for other variables will be described.

Chapter 6: Methods for Experimental Method

Experimental Design

The first part of this study used grounded theory (GT) methods that included examining data from both interview participants and extant documents (social media messages and online documents and videos); analysis of this data determined the core variables used by suicide prevention specialists to design social media messages to motivate suicide gatekeeper intervention. These core variables include constructs that reflect elements of the health belief model (Rosenstock, 1988), including *significance* of suicide threat (perceived threat), *preventability* of suicide (perceived benefits), and *beneficence* of engaging in a conversation about suicide (perceived benefits). In addition, an empathy appeal using a gain or loss frame may enhance message effectiveness so that a message receiver expects to take action (*detect* suicide threat, *engage* suicidal peer, and *connect* peer to resources). While these concepts may be influential in any message geared toward suicide gatekeepers, this study intends to outline the most effective concepts in order to provide information on what wording and framing is most useful when a message must be designed for brevity.

The second part of this research used a 3 (message construct: significance/ preventability/beneficence) x 2 (message frame: gain/loss) x 2 (message replication) experimental design to test specific variables in the emerging model of social media message design for suicide gatekeepers. Message construct was a between-subjects' factor. Message frame and message replication were within-subjects' factors.

Therefore, participants saw four messages designed with only one message construct, but these messages were presented with both gain and loss frames—two with a gain frame and two with a loss frame. A between-subjects design for message construct controlled for cross-

contamination of message construct, while a within-subjects design for message frame allowed for each participant to act as his or her own control and increased power, especially in light of prior literature showing that small effect sizes could be expected for message framing research (Grabe and Westley, 2003; Lee-Won et al., 2017; Leshner, 2014; Ratcliff et al., 2019). While message cross-contamination is a consideration in any message-dependent experiment (Grabe and Westley, 2003), this experiment was designed to best ensure that participants completed the survey; with the message framing condition (gain/loss) conducted within subjects with two message replications each (2x2), this ensured that the participants would answer the same set of questions no more than four times (once after each gain- or loss-framed message).

Participant Recruitment and Assignment

In this experiment, approval from both the University of Oklahoma and the University of Central Oklahoma's internal review boards (IRB) was sought to recruit participants ages 18-34 for a brief survey (to include students, faculty, and staff that fit the age range). The recruitment was conducted through a university-wide email and provided respondents with confidentiality. A chance to win one of five $50 Amazon gift cards was promised to those who completed the 10- to 15-minute survey. Winners of the five cards were to be randomly selected using a random number generator and then contacted independently.

A G*Power analysis suggested a sample size of 1,269 participants (about 423 participants for each of the three message construct groups) for an *F* test, ANOVA: fixed effects, main effects, and interactions, with a small effect size (effect size = 0.1, $\alpha = 0.05$, and power = 0.9) (Faul et al., 2009). Small effect sizes have been found in the past for gain- and loss-framed messages; a study examining smoking cessation gain- and loss-framed messages found significant results for several factors with a sample powered to detect an effect size of 0.2 (Toll

et al., 2007), but most effect sizes for message framing are considerably smaller (O'Keefe, 2007, 2009). In order to not be underpowered, this study used as large a sample size as it could collect and for which it could receive IRB approval.

Participants were to be randomly assigned through Qualtrics survey technology (www.qualtrics.com) to one of three message construct conditions—significance, preventability, or beneficence. Two messages using each construct were designed using a gain frame and two were designed using a loss frame. The survey did not contain a pretest in order to ensure that the participants were not pre-sensitized to the material to be tested (Wimmer & Dominick, 2014).

Participant and Demographic Information

Number of Participants

Approval from the Internal Review Board (IRB) at the University of Oklahoma (OU) was applied for and granted for up to 2,000 survey participants (students, faculty, or staff) on the OU and University of Central Oklahoma (UCO) campuses. After this approval was granted, approval from the IRB at UCO was also applied for and granted. Before the survey was released, it was pilot tested by 10 acquaintances of the researcher; the time that they took to read carefully through the statements and provide answers ranged from 6 to 12 minutes.

The online survey link was provided through an email that was sent to students, faculty, and staff at both campuses. OU received the link on August 22, 2022, and UCO received the link on August 24, 2022. The survey was open until August 29, 2022. It was closed with 1,678 responses.

To ensure that the responses submitted were due to reading and replying to the survey statements, the researcher identified surveys that were completed in less than 300 seconds (5 minutes), one minute less than the fastest reading rate in the pilot test. The researcher excluded cases that were under the 300 second mark, leaving a total sample of 1,434 survey responses

(Table 2). Only 10 % of these cases were between 5 and 6 minutes. Responses that were much longer than the 12-minute mark were included because respondents were allowed to return to finish the survey if they were interrupted.

Table 2

Number of Cases Selected from Original Sample Based on Duration of Survey

Variable	Duration in seconds
Criteria	> or = to 300 seconds
Valid	1,434
Mean	1,635.01 seconds
Median	640 seconds
Mode	385 seconds

Cases were then selected for those who met the age requirement of being in the age range of 18 to 34 years, as stated in the IRB application. In addition, because IRB approval was obtained for students, faculty, and staff on the two campuses but not for anyone outside of those campuses, respondents were eliminated if they indicated "Other" to the question asking them to select the campus where they worked or took classes.

This resulted in a final sample of 1,285. As stated in the methods section (Chapter 6), a sample size of 1,285 provides the power necessary (suggested sample of 1,269) to detect small effect sizes for message constructs and gain/loss framing (effect size = 0.1, $\alpha = 0.05$, and power = 0.9) (Faul et al., 2009).

The survey successfully randomized the between-subjects condition for the selected cases (message construct: significance, preventability, and beneficence) (Table 3). Each of the three conditions accounted for approximately a third of the final sample.

Table 3

Number of Cases in Each Message Construct Condition

Condition	Frequency	Percent	Cumulative Percent
Significance	409	31.8	31.8
Preventability	434	33.8	65.6
Beneficence	442	34.4	100.0
Total	1,285	100.0	100.0

Within each message construct condition, the survey successfully randomized the order of the messages (gain-framed message A, gain-framed message B, loss-framed message A, loss-framed message B) for a total of 72 different orders.

Demographics

Respondents were asked four demographic questions before being presented with their treatment condition. These included asking their age, their gender (male, female, or nonbinary), their race and/or ethnicity (open-ended), and their campus (UCO, OU, or Other). As mentioned, those who indicated "Other" for campus selection were eliminated due to lack of IRB approval for participants who were not members of the campus community. A breakdown of the participants' responses to gender and campus are shown in Table 4 and Table 5. The mean age of the respondents was 23.63 years of age (sd = 4.46).

Table 4

Frequency and Percentages for Gender

Gender	Frequency	Percent
Male	490	38.1
Female	749	58.3
Nonbinary	45	3.5
Missing	1	0.1

Table 5

Frequency and Percentages for Campus

Campus	Frequency	Percent
UCO	841	65.4
OU	444	34.6

Each participant wrote in their race and/or ethnicity. This was the only question on the survey that was not a scale or multiple-choice answer. This resulted in the researcher creating seven categories: White, Black, Asian, Native American/Alaskan/Hawaiian, Hispanic/Latino/Latina, Multiple Race or Ethnicity, and Other/No Response (which included no response and answers such as "U.S. Citizen"). These categories are similar to the five official categories of the U.S. Census Bureau (2022a): White, Black or African American, American Indian or Alaskan Native, Asian, and Native Hawaiian or Other Pacific Islander (Race), with non-Hispanic or Hispanic used to designate ethnicity (U.S. Census Bureau, 2022b). Participant race/ethnicity is shown in Table 6.

Table 6

Frequency and Percentages for Race

Race Category	Frequency	Percent
White	775	60.5
Black	75	5.8
Asian	119	9.3
Native American/Alaskan/Hawaiian	41	3.2
Hispanic/Latino/Latina	103	8.0
Multiple Race or Ethnicity	77	6.0
Other/No Response	93	7.2

Race Category	Frequency	Percent
Total	1,285	100.0

Message Attributes

The independent variables in this research included message construct (three levels) and message framing (two levels). This experiment used two social media messages per message framing condition, based on messages that have been used on social media (but controlled for the independent variables), for a total of four messages presented to each participant. Research suggests that multiple message designs may provide better reliability in estimating treatment effects (Jackson et al., 1989).

Each participant was presented with messages that had only one of the three constructs (significance, preventability, or beneficence); selection of the participants into the message construct condition was randomized by the survey software. In each condition, two of the messages included a sentence to support gain-framing, and two included a sentence to support loss framing. Whether the participant saw a gain-framed or loss-framed message first was also randomized to control for order effects. The end of each message included words that resembled links as well as the green heart emoji, which is often used in suicide prevention posts and shows caring feelings and close bonds (Dictionary.com, 2020). In order to control for message length, which can affect message credibility (Kwasniewicz et al., 2021), all messages were constrained to approximately 50 words. In addition, no images were used in order to keep the user's attention focused on the text and to control for image influence (Keib et al., 2017). Finally, although created (as opposed to curated) messages may come with some degree of unnaturalness, these messages entail tighter control over the exact wording of the concepts and framing to be tested (Bradac, 1986).

Examples of the message wording are included in Table 7. These messages are similar to the structure for gain and loss framing found in Toll et al. (2007) that found significant differences in gain and loss framing for smoking cessation messages.

Table 7

Conditions To Be Included in Experimental Message Design

Significance*	Preventability*	Beneficence*
	Gain-framed**	
When you reach out to a friend, you help them feel less alone and show that someone cares Suicide is a serious threat to your friend's life. People who talk about suicide aren't looking for attention—they are looking for your help. Learn more at the National Suicide Prevention Lifeline. 💚	When you reach out to a friend, you help them feel less alone and show that someone cares. Suicide can be prevented, and you can help stop it. Learn more at the National Suicide Prevention Lifeline. 💚	When you reach out to a friend, you help them feel less alone and show that someone cares. Talking about suicide doesn't plant the idea—it brings relief. Learn more at the National Suicide Prevention Lifeline. 💚
When you reach out to your friend, you help by showing that someone is there for them. If someone shows signs of suicide, their life is already in danger. Take it seriously. Learn more at the Suicide Prevention Resource Center. 💚	When you reach out to your friend, you help by showing that someone is there for them. You have the power to help prevent suicide. It's not inevitable. Learn more at the Suicide Prevention Resource Center. 💚	When you reach out to your friend, you help by showing that someone is there for them. Discussing your friend's feelings of suicide won't hurt them—it actually helps. Learn more at the Suicide Prevention Resource Center. 💚
	Loss-framed**	
When you don't reach out to your friends, they feel more alone and that no one cares. Suicide is a serious threat to your	When you don't reach out to your friends, they feel more alone and that no one cares. Suicide can be prevented, and you can	When you don't reach out to your friends, they feel more alone and that no one cares. Talking about suicide doesn't

friend's life. People who talk about suicide aren't looking for attention—they are looking for your help. Learn more at the National Suicide Prevention Lifeline. 💚	help stop it. Learn more at the National Suicide Prevention Lifeline. 💚	plant the idea—it brings relief. Learn more at the National Suicide Prevention Lifeline. 💚
When you ignore signs of suicide, you miss an opportunity. If someone shows signs of suicide, their life is already in danger. Take it seriously. Learn more at the Suicide Prevention Resource Center. 💚	When you ignore signs of suicide, you miss an opportunity. You have the power to help prevent suicide. It's not inevitable. Learn more at the Suicide Prevention Resource Center. 💚	When you ignore signs of suicide, you miss an opportunity. Discussing your friend's feelings of suicide won't hurt them—it actually helps. Learn more at the Suicide Prevention Resource Center. 💚

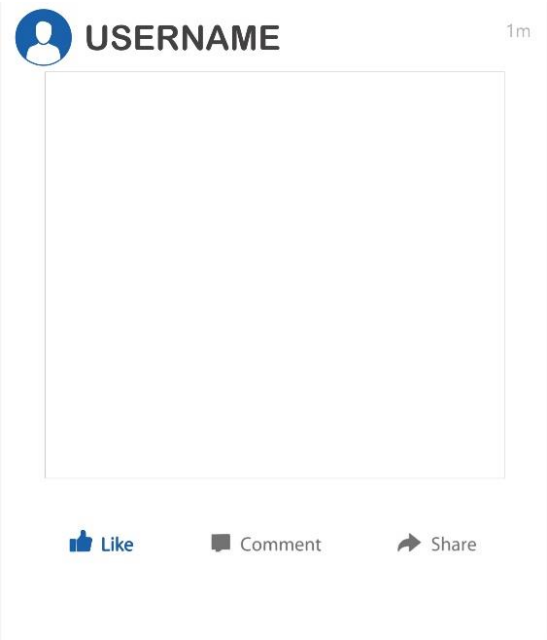
* To be tested between-subjects.
** To be tested within-subjects.

Message Template

Based on Facebook's continued popularity and familiarity among users ages 18-34 (Pew Research Center, 2021b), a template that mimics the posts on Facebook will be used to present the messages, with user information absent to control for source influence (Edney et al., 2018). In addition, the name "Facebook" will be cropped out in order to control for subconscious positive or negative feelings of the platform (Rainie, 2018). Figure 6 displays an image of the template.

Figure 6

Survey Message Template



Posttest Questions

A posttest following each message exposure examined the dependent variables of self-efficacy, response efficacy, state empathy, perceived message effectiveness, behavioral expectation, and likelihood of message engagement. The statements were interspersed with one another (and not in the order specifically stated above). In addition, four demographic questions were asked at the beginning of the survey including gender (with answer selections of Male, Female, or Nonbinary), race (text box), college campus (OU, UCO, or Other), and age. More demographic data could have been collected, but due to the need for a larger sample size and survey completion, the goal was to keep the survey succinct and collect only the information necessary to answer the research questions. The three or more statements representing each of the dependent variables were evaluated for reliability using a Cronbach's alpha test (Table 8).

Table 8

Scale Reliability for Dependent Variables

Composite Index (1-7)	*M*	Chronbach's α
Social Media Message Engagement	4.43	.821
Perceived Message Effectiveness	4.88	.940
Self-Efficacy	5.32	.929
Response Efficacy	5.37	.928
Empathy	4.67	.943
Behavioral Expectation	5.40	.962

Self-Efficacy

Maurer and Pierce (1998) found support in their study that a Likert scale can be used for traditional measures of self-efficacy; the researchers assert that the scale reliably evaluates the level that a person believes he or she can do something ($\alpha = 0.80$). Therefore, in regards to suicide gatekeeping, statements for participants to rate on a seven-point scale of "strongly disagree" to "strongly agree" included the following self-efficacy statements based on level of confidence in performing an action. The Cronbach's alpha scale reliability score for the three statements in this study was $\alpha = 0.93$. The statements were as follows:

- After reading this message, I am confident that I can reach out to a friend or peer I believe is having suicidal thoughts.
- After reading this message, I believe I have the ability to reach out to a friend or peer I believe is having suicidal thoughts.
- After reading this message, I know I can be effective when I reach out to a friend or peer I believe is having suicidal thoughts.

Response Efficacy

Response efficacy was measured through a three-item index similar to Bae's (2021) measurement of response efficacy used to identify mediation between response efficacy and message framing for coping strategies ($\alpha = 0.74$). Response efficacy statements were measured on a seven-point scale of "strongly disagree" to "strongly agree." The Cronbach's alpha scale reliability score for the three statements in this study was $\alpha = 0.93$. The statements were as follows:

- After reading this message, I know if I talk to my friend, I can help prevent suicide.
- After reading this message, I know if I help my friend find resources, I can help prevent suicide.
- After reading this message, I know if I reach out to my friend who is showing signs of suicide, I can help them.

Perceived Message Effectiveness

Perceived message effectiveness may have a critical influence on health communication outcomes; therefore, statements that evaluate a person's perceptions of the message's overall influence were repurposed for this study from Zhao et al.'s (2016) study on smoking-related messages for adolescents ($\alpha = 0.90$). However, this study used a seven-point scale (instead of five) of "strongly disagree" to "strongly agree" to maintain consistency with other measures in the survey posttest. The Cronbach's alpha scale reliability score for these five statements in this study was $\alpha = 0.94$. The statements were as follows:

- This message is powerful.
- This message is informative.
- This message is meaningful.
- This message is worth remembering.

- This message grabbed my attention.

State Empathy

State empathy may indicate how likely someone is to consider another's point of view; therefore, these statements were adapted from Shen's (2010b) statements measuring state empathy (the two studies featured in Shen's article showed $\alpha = 0.86$ and $\alpha = 0.91$ for these empathy scales) and included a seven-point scale of "strong disagree" to "strongly agree." The Cronbach's alpha scale reliability score for the three statements in this study was $\alpha = 0.94$. The statements were as follows:

- After reading this message, I can see the point of view of a friend having suicidal thoughts.
- After reading this message, I recognize situations where my friends may feel they have nothing to live for.
- After reading this message, I can understand what my friends are going through when they are thinking about taking their life.

Likelihood of Engagement

Engagement with a social media message includes liking, sharing, or commenting on a post (Streklova & Damiani, 2016). Therefore, these statements were included with a seven-point scale of "strongly disagree" to "strongly agree": The Cronbach's alpha scale reliability score for the three statements in this study was $\alpha = 0.82$. The statements were as follows:

- I would be likely to like these posts.
- I would be likely to share these posts.
- I would be likely to comment on these posts.

Because social media engagement behavior such as liking, commenting, and sharing are not always consistent, likelihood of engagement were examined both as one construct and also as three distinct constructs.

Behavioral Expectation

This study also measured the level of behavioral expectation of suicide gatekeepers in intervening on behalf of a peer. Statements were rated on a seven-point scale ("strongly disagree" to "strongly agree") and were adapted from Maruping et al.'s (2016) study that used three questions for behavioral expectation ($\alpha = 0.87$); the study showed support for behavioral expectation as a strong predictor of behavior. The Cronbach's alpha scale reliability score for the three statements in this study was $\alpha = 0.96$. The statements were as follows:

- After reading this message, I expect that I will intervene on behalf of a friend or peer I believe is having suicidal thoughts.
- After reading this message, I know I will definitely intervene on behalf of a friend or peer I believe is having suicidal thoughts.
- After reading this message, I believe I am likely to intervene on behalf of a friend or peer I believe is having suicidal thoughts.

Once the survey was complete, participants were redirected to a page that gave them the opportunity to enter the drawing.

Procedures

In summary, procedures for the experiment took place in the following steps. The survey was completed in Qualtrics (www.qualtrics.com), according to the specifications listed in this chapter for message design and randomization. Manipulation checks were not conducted, because they are unnecessary when the message is defined in terms of its intrinsic features, not

as psychological states of the participant (O'Keefe, 2003). Tao and Bucy (2007), while advocating for receiver-based investigations of message processing, express that effect-oriented definitions of media stimuli make assumptions about the homogeneity of response to media stimuli, instead of relying on fully describing and providing a strong rationale for the specific media attributes included in a message. Yet, a pilot of the survey was conducted among 10 people to check for readability, functionality, and timeliness of the survey. The survey was estimated to take about 6 to 12 minutes based on this test.

Participants for the online experiment were recruited through a university-wide email sent from UCO's College of Liberal Arts and through an email blast at OU. The email briefly described the scope of the study, as well as the reward for participation. The email included the IRB approval number and the contact information for the principal investigator and the National Suicide Prevention Lifeline. A link to the research survey was provided at the end of the email. Those who clicked on the link were presented with an online consent form. This form further detailed the benefits and risks of the study, provided assurance of confidentiality and ability to withdraw from the study at any time, and gave contact information for the UCO IRB, the OU IRB, the principal investigator, and the National Suicide Prevention Lifeline.

Those who electronically signed the consent form were presented with four demographic questions. These were useful for screening out anyone who did not fall within the age range (18 to 34 years) or who was not on one of the two approved college campuses. Next, participants were presented with a brief set of instructions that read as follows:

> You will view four social media messages and answer a brief set of questions after each. Please read carefully. Once you finish these sets of questions, you will

be redirected to enter the drawing for 1 of 5 Amazon gift cards worth $50 each. This survey should take no more than 10-15 minutes.

Following this, participants were randomly assigned to one of three message construct conditions using the Qualtrics randomizer tool. Participants were presented with four social media messages based on one of the three message constructs. Two of the messages were gain-framed and the other two were loss-framed. The order of these messages was also randomized through Qualtrics. Following each message, the participants were asked to rate the statements described above in order to assess dependent variables and mediators (for a total of four times). When participants completed rating the scales after all four messages, they were presented with a screen that redirected them to another survey in which to provide their emails for the drawing (separating their emails from their answers), as well as the contact information for the principal investigator and the National Suicide Prevention Lifeline. Data were collected in Qualtrics, and exported files were kept on a password protected drive and downloaded on password-protected computers for analysis.

Data Measurement

Statistical tests were conducted in SPSS statistical software (www.ibm.com/analytics/spss-statistics-software) to analyze the data. The program was used to analyze the paths shown in Figure 5.

Data Analysis Process

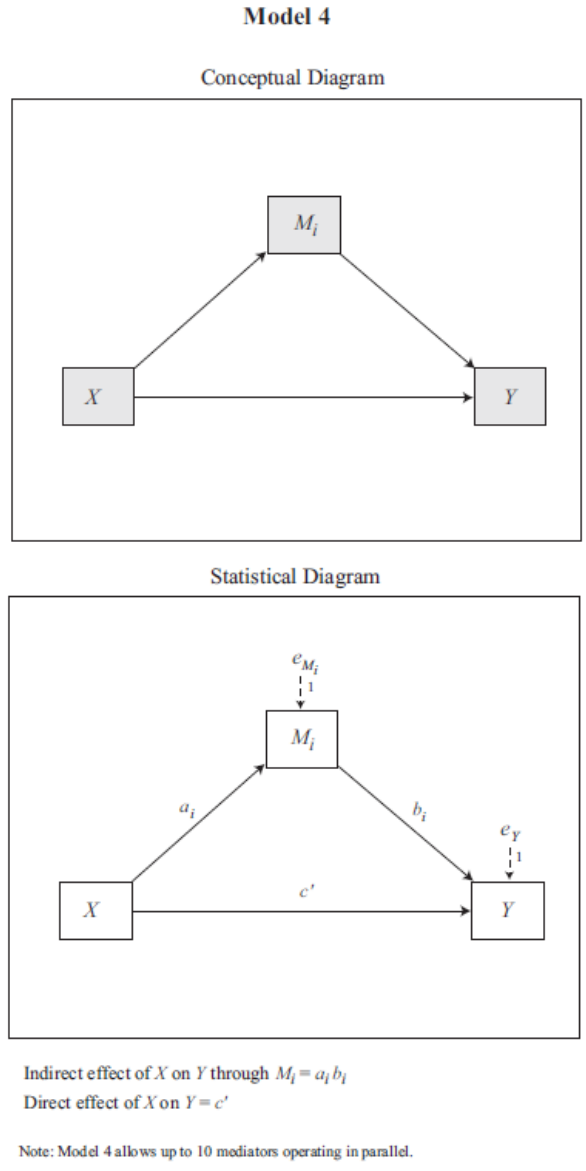
The research questions asked which of the three message constructs found in the model of social media message design for suicide gatekeepers and which type of message framing has the most positive effect on self-efficacy, response efficacy, perceived message effectiveness, likelihood of message engagement, and behavioral expectation. One-way ANOVA tests,

repeated-measures ANOVA test, and paired-sample *t* tests were used to compare the influence of each of the two independent variables (significance, preventability, or beneficence construct; gain or loss frame) and determine if any of the constructs or frames showed a significant influence on each of the dependent variables, as well as test for interaction effects (Cronk, 2020).

The next six research questions were concerned with mediation to better understand the positioning of the concepts in the developing model. To measure mediation, Baron and Kenney (1986) suggested the causal steps approach, but this approach is low in power. Conversely, bootstrapping generates an empirical representation of the sampling distribution—treating the obtained sample as a representation of the population "in miniature," one that is resampled during the analysis by mimicking the original sampling process (Hayes, 2009, p. 412). It runs the sample *k* times (at least 1,000 times, although 5,000 is recommended), placing each sample statistic in the broader context—increasing power but controlling for Type 1 error. Bootstrapping allows us to minimize the number of tests we need to support our claim of indirect effects (Hayes, 2009). Therefore, mediating variables were analyzed using Hayes' PROCESS for SPSS and SAS (www.afhayes.com/). Model 4 with one mediator (Hayes, 2013) (Figure 7) was used to test for indirect effects and examined the pathways in this research's conceptual model (Figure 5). In addition, the researcher was prepared to use Model 6 with serial mediation (Hayes, 2013) if pathways in Model 4 indicated that the test could be useful for further examination of the model.

Figure 7

Model 4 Conceptual and Statistical Diagrams from Hayes' PROCESS for SPSS



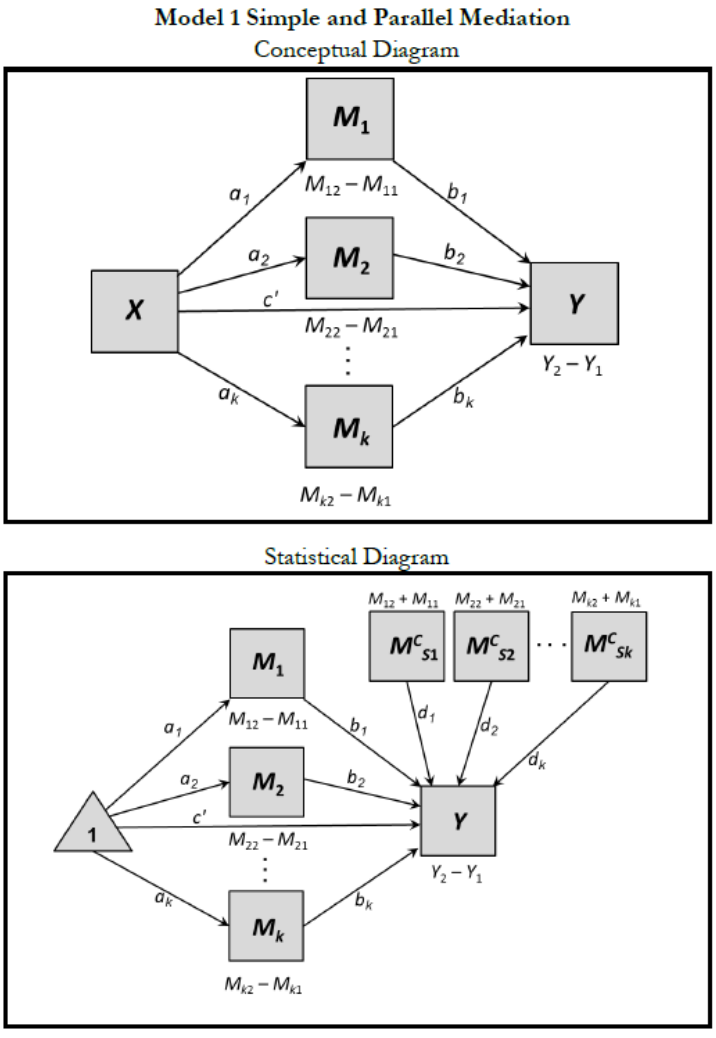
Note: This figure reproduced from "Model templates for PROCESS for SPSS and SAS," by A. F. Hayes, 2013, available from http://www.afhayes.com.

In order to examine mediation in a within-subjects design and address the final research question, mediating variables in a within-subjects design were analyzed using Montoya's (2019) MEMORE for SPSS and SAS (www.akmontoya.com), Model 1 (Figure 8). The macro

implements a method described by Judd et. al. (2001) and estimates direct effects and also uses bootstrapping to generate confidence intervals to make inferences about the significance of the indirect effects.

Figure 8

Model 1 Conceptual and Statiscal Diagrams from Montaya and Hayes MEMORE for SPSS



Note: This figure reproduced from "Model Templates for MEMORE V2.1," by A. K. Montoya, 2019, available from www.akmontoya.com.

Finally, results from all the analyses will be reported in statistical measures and connected back to the concepts behind the variables to best ascertain the meaning of the data.

Chapter 7: Online Experiment Results

Results of Research Questions

The first research question asked which of the three message construct conditions found in the model of social media message design for suicide gatekeepers (significance, preventability, or beneficence) has the most positive effect on a message receiver's a) perceived message effectiveness, b) behavioral expectation, c) self-efficacy, d) response efficacy, and e) likelihood of message engagement. This part of the experiment was run between subjects and used a one-way ANOVA with a Tukey's *HSD* post-hoc comparison to assess results.

Perceived Message Effectiveness

The researcher computed a one-way ANOVA comparing the perceived message effectiveness scores of the participants who read the significance, preventability, or beneficence message condition (Table 9). A significant difference was found among the groups (F (2, 1,275) = 4.15, p = .016, η^2_p = .006). Tukey's *HSD* was used to determine the nature of the differences among the message construct conditions.

This analysis revealed that participants in the significance message condition (M = 4.98, sd = 1.17) were significantly more likely (p = .011 to rate the messages' perceived effectiveness higher than participants in the preventability message condition (M = 4.74, sd = 1.30). Those in the significance message condition rated the messages' perceived effectiveness higher than those in the beneficence message condition (M = 4.86, sd = 1.17), but the difference was not significant (p = .312). There was no significant difference between the preventability and beneficence conditions (p = .312).

Table 9

Between-Subjects Effects for Message Condition and Perceived Message Effectiveness

Message Construct	*M*	*M* difference	*SE*	*p*
Significance	4.98			
Preventability		.24	.084	.011*
Beneficence		.12	.083	.312
Preventability	4.74			
Significance		-.24	.084	.011*
Beneficence		-.12	.082	.312
Beneficence	4.86			
Significance		-.12	.083	.312
Preventability		.12	.082	.312

**p < .05*

Behavioral Expectation

The researcher computed a one-way ANOVA comparing the behavioral expectation scores of the participants in the significance, preventability, or beneficence message condition. No significant difference was found (F (2, 1,281) = 0.15, p = .985). Participants in the significance message condition had a mean score for behavioral expectation of 5.41 (sd = 1.06), participants in the preventability message condition had a mean score of 5.39 (sd = 1.10), and participants in the beneficence condition had a mean score of 5.41 (sd = 0.97).

Self-Efficacy

The researcher computed a one-way ANOVA comparing the self-efficacy scores of the participants in the significance, preventability, or beneficence message condition. No significant difference was found (F (2, 1,282) = 0.20, p = .817). Participants in the significance message

condition had a mean score for self-efficacy of 5.31 (*sd* = 1.05), participants in the preventability message condition had a mean score of 5.34 (*sd* = 1.05), and participants in the beneficence condition had a mean score of 5.30 (*sd* = 1.00).

Response Efficacy

The researcher computed a one-way ANOVA comparing the response efficacy scores of the participants in the significance, preventability, or beneficence message condition. No significant difference was found (F (2, 1,281) = 0.17, p = .843). Participants in the significance message condition had a mean score for response efficacy of 5.37 (*sd* = 1.02), participants in the preventability message condition had a mean score of 5.39 (*sd* = 1.08), and participants in the beneficence condition had a mean score of 5.35 (*sd* = 0.98).

Social Media Message Engagement

The researcher computed a one-way ANOVA comparing the likelihood of social media message engagement among the participants in the significance, preventability, or beneficence message condition. No significant difference was found (F (2, 1,277) = 2.43, p = .088). Participants in the significance message condition had a mean score for likelihood of social media message engagement of 4.53 (*sd* = 1.38), participants in the preventability message condition had a mean score of 4.32 (*sd* = 1.50), and participants in the beneficence condition had a mean score of 4.37 (*sd* = 1.40).

Because social media message engagement behaviors can be defined as individual behaviors with different triggers, the research also analyzed each type of engagement (liking, sharing, and commenting).

Liking the message. The researcher computed a one-way ANOVA comparing the likelihood of liking a social media message among the participants in the significance,

preventability, or beneficence message condition. No significant difference was found (F (2, 1,275) = 2.59, p = .075), although significance was approached for those in the significance message condition being more likely to like the messages than those in the preventability message condition (p = .060). Participants in the significance message condition had a mean score for likelihood of liking a message of 5.19 (sd = 1.35), participants in the preventability message condition had a mean score of 4.97 (sd = 1.47), and participants in the beneficence condition had a mean score of 5.07 (sd = 1.35).

Sharing the message. The researcher computed a one-way ANOVA comparing the likelihood of sharing a social media message among the participants in the significance, preventability, or beneficence message condition (Table 10). A significant difference was found among the groups (F (2, 1,246) = 4.00, p = .019, η^2_p = .006). Tukey's *HSD* was used to determine the nature of the differences between the message exposure. This analysis revealed that participants in the significance message condition (M = 4.52, sd = 1.61) were significantly more likely to share the social media message than participants in the preventability message condition (M = 4.25, sd = 1.70, p = .042) or beneficence condition (M = 4.24, sd = 1.63, p = .033). There was no significant difference in the likelihood of sharing a social media message between the preventability and beneficence message conditions (p = .996)

Table 10

Between-Subjects Effects for Message Condition and Sharing a Social Media Message

Message Construct	*M*	*M* difference	*SE*	*p*
Significance	4.52			
Preventability		.28	.12	.042*
Beneficence		.29	.11	.033*

Preventability	4.25			
Significance		-.28	.12	.042*
Beneficence		.01	.11	.996
Beneficence	4.24			
Significance		-.29	.11	.033*
Preventability		-.01	.11	.996

$p < .05$

Commenting on the message. The researcher computed a one-way ANOVA comparing the likelihood of commenting on a social media message among the participants in the significance, preventability, or beneficence message condition. No significant difference was found (F (2, 1,178) = 0.57, p = .565). Participants in the significance message condition had a mean score for likelihood of commenting on a message of 3.87 (sd = 1.88), participants in the preventability message condition had a mean score of 3.77 (sd = 1.88), and participants in the beneficence condition had a mean score of 3.73 (sd = 1.89).

Mediation

The next set of research questions focused on possible mediator variables. In this study, mediating variables were analyzed using Hayes' PROCESS for SPSS and SAS (www.afhayes.com/). Hayes (2004) has noted that the process of mediation can be determined through tests of indirect effects, whereby the effect of the independent variable on the dependent variable does not require significance for the mediating variable to have influence in the process; indirect effects are considered significant if the value of 0 cannot be found between the boot lower-level confidence interval (BootLLCI) and the boot upper-level confidence interval (BootUCLI) in the test.

Research Question 2. The second research question asked if perceived self-efficacy mediates the relationship between message construct and a message receiver's a) likelihood of social media message engagement, b) perceived message effectiveness, and c) behavioral expectation.

Table 11

Direct and Indirect Effects of Message Construct as Independent Variable and Self-Efficacy as Mediator on Social Media Message Engagement, Perceived Message Effectiveness, and Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect
X = Message construct M = Self-efficacy Y = Social media message engagement	-.0684	.-.0110	-.0652 / .0433
X = Message construct M = Self-efficacy Y= Likelihood of liking a message	-.0450	-.0133	-.0642 / .0364
X = Message construct M = Self-efficacy Y= Likelihood of sharing a message	-.1224	-.0195	-.0807/ .0394
X = Message construct M = Self-efficacy Y= Likelihood of commenting on a message	-.0502	-.0198	-.0792/ .0386

X = Message construct M = Self-efficacy Y= Perceived Message Effectiveness	-.0519	-.0065	-.0615 / .0482
X = Message construct M = Self-efficacy Y = Behavioral expectation	.0056	-.0055	-.0679/ .0550

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI and BootULCI.

Message Construct, Self-efficacy, and Social Media Message Engagement. PROCESS Model 4 was used to examine this relationship, which examines the influence of one mediator between an independent and dependent variable. The total effect of message construct on likelihood of social media message engagement was not significant (Effect = -.0794, t = -1.61, p = .107, LLCI = -.1758, and ULCI = .0171). The direct effect of message construct on likelihood of social media message engagement was not significant (Effect = -.0684, t = -1.69, p = .091, LLCI = -.1476, and ULCI = .0109). Although self-efficacy was a significant positive predictor of likelihood of social media message engagement in this model (coefficient = .80, t = 24.80, p < .001, LLCI = .7333, and ULCI = .8592), the indirect effect of message construct on likelihood of social media message engagement with self-efficacy as the mediator engagement was not significant (Effect = -.0110, BootLLCI = -.0652, and BootULCI = .0433).

Self-efficacy was also examined as a mediator between message construct and the subcategories of social media message engagement.

- **Likelihood of liking a social media message.** The total effect of message construct on likelihood of liking a social media message was not significant (Effect = -.0583, *t* = -1.22, *p* = .225, LLCI = -.1523, and ULCI = .0358). The direct effect of message construct on likelihood of liking a social media message was not significant (Effect = -.0450, *t* = -1.12, *p* = .264, LLCI = -.1240, and ULCI = .0340). Although self-efficacy was a significant positive predictor of likelihood of liking a social media message in this model (coefficient = .74, *t* = 23.12, *p* < .001, LLCI = .6775, and ULCI = .8031), the indirect effect of message construct on likelihood of liking a social media message with self-efficacy as the mediator was not significant (Effect = -.0133, BootLLCI = -.0642, and BootULCI = .0364).
- **Likelihood of sharing a social media message.** The total effect of message construct on likelihood of sharing a social media message was significant (Effect = -.1419, *t* = -2.48, *p* = .013, LLCI = -.2543, and ULCI = -.0295). The direct effect of message construct on likelihood of sharing a social media message was also significant (Effect = -.1224, *t* = -2.51, *p* = .012, LLCI = -.2180, and ULCI = -.0267). Although self-efficacy was a significant positive predictor of likelihood of sharing a social media message in this model (coefficient = .86, *t* = 21.81, *p* < .001, LLCI = .7848, and ULCI = .9400), the indirect effect of message construct on likelihood of sharing a social media message with self-efficacy as the mediator was not significant (Effect = -.0195, BootLLCI = -.0807, and BootULCI = .0394).
- **Likelihood of commenting on a social media message.** The total effect of message construct on likelihood of commenting on a social media message was not significant (Effect = -.0700, *t* = -1.04, *p* = .300, LLCI = -.2023, and ULCI =

.0624). The direct effect of message construct on likelihood of commenting on a social media message was not significant (Effect = -.0502, t = -.83, p = .406, LLCI = -.1688, and ULCI = .0684). Although self-efficacy was a significant positive predictor of likelihood of commenting on a social media message in this model (coefficient = .84, t = 17.05, p < .001, LLCI = .7410, and ULCI = .9337), the indirect effect of message construct on likelihood of commenting on a social media message with self-efficacy as the mediator was not significant (Effect = -.0198, BootLLCI = -.0792, and BootULCI = .0386).

Message Construct, Self-efficacy, and Perceived Message Effectiveness. PROCESS Model 4 was used to examine this relationship. The total effect of message construct on perceived message effectiveness was not significant (Effect = -.0585, t = -1.40, p = .162, LLCI = -.1405, and ULCI = .0236). The direct effect of message construct on perceived message effectiveness was not significant (Effect = -.0519, t = -1.67, p = .096, LLCI = -.1131, and ULCI = .0092). Although self-efficacy was a significant positive predictor of perceived message effectiveness in this model (coefficient = .79, t = 31.93, p < .001, LLCI = .7403, and ULCI = .8372), the indirect effect of message construct on perceived message effectiveness with self-efficacy as the mediator was not significant (Effect = -.0065, BootLLCI = -.0615, and BootULCI = .0482).

Message Construct, Self-efficacy, and Behavioral Expectation. PROCESS Model 4 was used to examine this relationship. The total effect of message construct on behavioral expectation was not significant (Effect = .0002, t = .00, p = .996, LLCI = -.0700, and ULCI = .0704). The direct effect of message construct on behavioral expectation was not significant (Effect = .0056, t =.34, p = .733, LLCI = -.0267, and ULCI = .0380). Although self-efficacy was a significant

positive predictor of behavioral expectation in this model (coefficient = .90, $t = 68.91$, $p < .001$, LLCI = .8714, and ULCI = .9224), the indirect effect of message construct on behavioral expectation with self-efficacy as the mediator was not significant (Effect = -.0055, BootLLCI = -.0679, and BootULCI = .0550).

Research Question 3. The third research question asked if response efficacy mediates the relationship between message construct and message receiver's a) likelihood of social media message engagement, b) perceived message effectiveness, and c) behavioral expectation.

Table 12

Direct and Indirect Effects of Message Construct as Independent Variable and Response Efficacy as Mediator on Social Media Message Engagement, Perceived Message Effectiveness, and Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect
X = Message construct M = Response efficacy Y = Social media message engagement	-.0670	-.0130	-.0704 / .0410
X = Message construct M = Response efficacy Y= Likelihood of liking a message	-.0480	-.0117	-.0625 / .0399
X = Message construct M = Response efficacy Y= Likelihood of sharing a message	-.1229	-.0190	-.0796 / .0438
X = Message construct M = Response efficacy	-.0444	-.0255	-.0881/ .0363

Y= Likelihood of commenting on a message			
X = Message construct M = Response efficacy Y= Perceived message effectiveness	-.0526	-.0059	-.0606 / .0467
X = Message construct M = Response efficacy Y = Behavioral expectation	.0067	-.0066	-.0654 / .0532

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI and BootULCI.

Message Construct, Response Efficacy, and Social Media Message Engagement.

PROCESS Model 4 was used to examine this relationship. The total effect of message construct on likelihood of social media message engagement was not significant (Effect = -.0800, t = -1.62, p = .105, LLCI = -.1765, and ULCI = .0166). The direct effect of message construct on likelihood of social media message engagement was not significant (Effect = -.0670, t = -1.70, p = .090, LLCI = -.1444, and ULCI = .0104). Although response efficacy was a significant positive predictor of likelihood of social media message engagement in this model (coefficient = .84, t = 26.69, p < .001, LLCI = .7789, and ULCI = .9024), the indirect effect of message construct on social media message engagement with response efficacy as the mediator was not significant (Effect = -.0130, BootLLCI = -.0704, and BootULCI = .0410).

Response efficacy was also examined as a mediator between message construct and the subcategories of social media message engagement.

- **Likelihood of liking a social media message.** The total effect of message construct on likelihood of liking a social media message was not significant (Effect = -.0597, *t* = -1.24, *p* = .214, LLCI = -.1538, and ULCI = .0345). The direct effect of message construct on likelihood of liking a social media message was not significant (Effect = -.0480, *t* = -1.20, *p* = .231, LLCI = -.1264, and ULCI = .0305). Although response efficacy was a significant positive predictor of likelihood of liking a social media message in this model (coefficient = .76, *t* = 23.68, *p* < .001, LLCI = .6929, and ULCI = .8181), the indirect effect of message construct on likelihood of liking a social media message with response efficacy as the mediator was not significant (Effect = -.0117, BootLLCI = -.0625, and BootULCI = .0399).
- **Likelihood of sharing a social media message.** The total effect of message construct on likelihood of sharing a social media message was significant (Effect = -.1419, *t* = -2.48, *p* = .013, LLCI = -.2543, and ULCI = -.0295). The direct effect of message construct on likelihood of sharing a social media message was significant (Effect = -.1229, *t* = -2.60, *p* = .010, LLCI = -.2159, and ULCI = -.0299). Although response efficacy was a significant positive predictor of likelihood of sharing a social media message in this model (coefficient = .93, *t* = 24.03, *p* < .001, LLCI = .8528, and ULCI = 1.0045), the indirect effect of message construct on likelihood of sharing a social media message with response efficacy as the mediator was not significant (Effect = -.0190, BootLLCI = -.0796, and BootULCI = .0438).

- **Likelihood of commenting on a social media message.** The total effect of message construct on likelihood of commenting on a social media message was not significant (Effect = -.0700, t = -1.04, p = .300, LLCI = -.2023, and ULCI = .0624). The direct effect of message construct on likelihood of commenting on a social media message was not significant (Effect = -.0444, t = -.75, p = .454, LLCI = -.1609, and ULCI = .0720). Although response efficacy was a significant positive predictor of likelihood of commenting on a social media message in this model (coefficient = .90, t = 18.58, p < .001, LLCI = .8061, and ULCI = .9965), the indirect effect of message construct on likelihood of commenting on a social media message with response efficacy as the mediator was not significant (Effect = -.0255, BootLLCI = -.0881, and BootULCI = .0363).

Message Construct, Response Efficacy, and Perceived Message Effectiveness. PROCESS Model 4 was used to examine this relationship. The total effect of message construct on perceived message effectiveness was not significant (Effect = -.0585, t = -1.40, p = .162, LLCI = -.1405, and ULCI = .0236). The direct effect of message construct on perceived message effectiveness was not significant (Effect = -.0526, t = -1.69, p = .091, LLCI = -.1136, and ULCI = .0084). Although response efficacy was a significant positive predictor of perceived message effectiveness in this model (coefficient = .79, t = 32.14, p < .001, LLCI = .7460, and ULCI = .8429), the indirect effect of message construct on perceived message effectiveness with response efficacy as the mediator was not significant (Effect = -.0059, BootLLCI = -.0606, and BootULCI = .0467).

Message Construct, Response Efficacy, and Behavioral Expectation. PROCESS Model 4 was used to examine this relationship. The total effect of message construct on behavioral

expectation was not significant (Effect = .0002, t = .00, p = .996, LLCI = -.0700, and ULCI = .0704). The direct effect of message construct on behavioral expectation was not significant (Effect = .0067, t = .36, p = .721, LLCI = -.0303, and ULCI = .0437). Although response efficacy was a significant positive predictor of behavioral expectation in this model (coefficient = .86, t = 57.69, p < .001, LLCI = .8338, and ULCI = .8925), the indirect effect of message construct on behavioral expectation with response efficacy as the mediator was not significant (Effect = -.0066, BootLLCI = -.0654, and BootULCI = .0532).

Research Question 4. The fourth research question asked if perceived message effectiveness mediates the relationship between self-efficacy and a message receiver's a) likelihood of social media message engagement and b) behavioral expectation.

Table 13

Direct and Indirect Effects of Self-Efficacy as Independent Variable and Perceived Message Effectiveness as Mediator on Social Media Message Engagement and Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect
X = Self-efficacy M = Perceived message effectiveness Y = Social media message engagement	.1313**	.6639*	.5975 / .7345
X = Self-efficacy M = Perceived message effectiveness Y= Likelihood of liking a message	.1674**	.5666*	.5017 / .6344
X = Self-efficacy M = Perceived message effectiveness Y= Likelihood of sharing a message	.1164**	.7473*	.6678 / .8312

X = Self-efficacy M = Perceived message effectiveness Y= Likelihood of commenting on a message	.1056	.7349*	.6398 / .8332
X = Self-efficacy M = Perceived message effectiveness Y= Behavioral expectation	.8464**	.0533*	.0266 / .0800

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI.

*$p < .05$

** $p < .001$

Self-Efficacy, Perceived Message Effectiveness, and Social Media Message Engagement. PROCESS Model 4 was used to examine this relationship. The total effect of self-efficacy on likelihood of social media message engagement was significant (Effect = .7952, t = 24.58, $p < .001$, LLCI = .7318, and ULCI = .8587). The direct effect of self-efficacy on likelihood of social media message engagement was significant (Effect = .1313, t = 3.98, $p <$ .001, LLCI = .0665, and ULCI = .1961). Perceived message effectiveness was a significant positive predictor of likelihood of social media message engagement in this model (coefficient = .84, t = 30.25, $p < .001$, LLCI = .7845, and ULCI = .8933). The indirect effect of self-efficacy on likelihood of social media message engagement with perceived message effectiveness as the mediator was also significant (Effect = .6639, BootLLCI = .5975, and BootULCI = .7345).

Perceived message effectiveness was also examined as a mediator between self-efficacy and the subcategories of social media message engagement.

- **Likelihood of liking a social media message.** The total effect of self-efficacy on likelihood of liking a social media message was significant (Effect = .7340, t =

22.86, $p < .001$, LLCI = .6710, and ULCI = .7970). The direct effect of self-efficacy on likelihood of liking a social media message was significant (Effect = .1674, $t = 4.68$, $p < .001$, LLCI = .0972, and ULCI = .2376). Perceived message effectiveness was a significant positive predictor of likelihood of liking a social media message in this model (coefficient = .71, $t = 23.80$, $p < .001$, LLCI = .6557, and ULCI = .7735). The indirect effect of self-efficacy on likelihood of liking a social media message with perceived message effectiveness as the mediator was also significant (Effect = .5666, BootLLCI = .5017, and BootULCI = .6344).

- **Likelihood of sharing a social media message.** The total effect of self-efficacy on likelihood of sharing a social media message was significant (Effect = .8637, $t = 21.77$, $p < .001$, LLCI = .7859, and ULCI = .9415). The direct effect of self-efficacy on likelihood of sharing a social media message was significant (Effect = .1164, $t = 2.78$, $p = .006$, LLCI = .0343, and ULCI = .1986). Perceived message effectiveness was a significant positive predictor of likelihood of sharing a social media message in this model (coefficient = .94, $t = 27.07$, $p < .001$, LLCI = .8759, and ULCI = 1.0128). The indirect effect of self-efficacy on likelihood of sharing a social media message with perceived message effectiveness as the mediator was also significant (Effect = .7473, BootLLCI = .6678, and BootULCI = .8312).
- **Likelihood of commenting on a social media message.** The total effect of self-efficacy on likelihood of commenting on a social media message was significant (Effect = .8406, $t = 17.07$, $p < .001$, LLCI = .7440, and ULCI = .9372). The direct effect of self-efficacy on likelihood of commenting on a social media message was not significant (Effect = .1056, $t = 1.82$, $p = .07$, LLCI = -.0083, and

ULCI = .2196). Perceived message effectiveness was a significant positive predictor of likelihood of commenting on a social media message in this model (coefficient = .92, t = 18.90, p < .001, LLCI = .8213, and ULCI = 1.0116). The indirect effect of self-efficacy on likelihood of commenting on a social media message with perceived message effectiveness as the mediator was also significant (Effect = .7349, BootLLCI = .6398, and BootULCI = .8332).

Self-efficacy, Perceived Message Effectiveness, and Behavioral Expectation. PROCESS Model 4 was used to examine this relationship. The total effect of self-efficacy on behavioral expectation was significant (Effect = .8996, t = 69.58, p < .001, LLCI = .8743, and ULCI = .9250). The direct effect of self-efficacy on behavioral expectation was significant (Effect = .8464, t = 49.21, p < .001, LLCI = .8126, and ULCI = .8801). Perceived message effectiveness was a significant positive predictor of behavioral expectation in this model (coefficient = .07, t = 4.65, p < .001, LLCI = .0390, and ULCI = .0960). The indirect effect of self-efficacy on behavioral expectation with perceived message effectiveness as the mediator was also significant (Effect =.0533, BootLLCI = .0266, and BootULCI = .0800).

Research Question 5. The fifth research question asks if perceived message effectiveness mediates the relationship between response efficacy and message receiver's a) likelihood of social media message engagement and b) behavioral expectation.

Table 14

Direct and Indirect Effects of Response Efficacy as Independent Variable and Perceived Message Effectiveness as Mediator on Social Media Message Engagement and Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect

X = Response efficacy M = Perceived message effectiveness Y = Social media message engagement	.2019**	.6376*	.5720 / .7043
X = Response efficacy M = Perceived message effectiveness Y = Likelihood of liking a message	.1929**	.5587*	.4951 / .6265
X = Response efficacy M = Perceived message effectiveness Y = Likelihood of sharing a message	.2251**	.7050*	.6282 / .7855
X = Response efficacy M = Perceived message effectiveness Y = Likelihood of commenting on a message	.2116**	.6902*	.6001 / .7859
X = Response efficacy M = Perceived message effectiveness Y = Behavioral expectation	.7772**	.0846*	.0534 / .1166

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI.

*$p < .05$

** $p < .001$

Response Efficacy, Perceived Message Effectiveness, and Social Media Message Engagement. PROCESS Model 4 was used to examine this relationship. The total effect of response efficacy on likelihood of social media message engagement was significant (Effect = .8396, $t = 26.53$, $p < .001$, LLCI = .7775, and ULCI = .9017). The direct effect of response efficacy on likelihood of social media message engagement was significant (Effect = .2019, t =

6.12, $p < .001$, LLCI = .1372, and ULCI = .2666). Perceived message effectiveness was a significant positive predictor of social media message engagement in this model (coefficient = .80, $t = 28.99$, $p < .001$, LLCI = .7454, and ULCI = .8536). The indirect effect of response efficacy on social media message engagement with perceived message effectiveness as the mediator was also significant (Effect = .6376, BootLLCI = .5720, and BootULCI = .7043).

Perceived message effectiveness was also examined as a mediator between response efficacy and the subcategories of social media message engagement.

- **Likelihood of liking a social media message.** The total effect of response efficacy on likelihood of liking a social media message was significant (Effect = .7515, $t = 23.53$, $p < .001$, LLCI = .6889, and ULCI = .8142). The direct effect of response efficacy on likelihood of liking a social media message was significant (Effect = .1929, $t = 5.38$, $p < .001$, LLCI = .1225, and ULCI = .2632). Perceived message effectiveness was a significant positive predictor of likelihood of liking a social media message in this model (coefficient = .70, $t = 23.34$, $p < .001$, LLCI = .6416, and ULCI = .7593). The indirect effect of response efficacy on likelihood of liking a social media message with perceived message effectiveness as the mediator was also significant (Effect = .5587, BootLLCI = .4951, and BootULCI = .6265).
- **Likelihood of sharing a social media message.** The total effect of response efficacy on likelihood of sharing a social media message was significant (Effect = .9301, $t = 24.01$, $p < .001$, LLCI = .8540, and ULCI = 1.0061). The direct effect of response efficacy on likelihood of sharing a social media message was significant (Effect = .2251, $t = 5.39$, $p < .001$, LLCI = .1431, and ULCI = .3070).

Perceived message effectiveness was a significant positive predictor of likelihood of sharing a social media message in this model (coefficient = .89, t = 25.56, p < .001, LLCI = .8172, and ULCI = .9531). The indirect effect of response on likelihood of sharing a social media message with perceived message effectiveness as the mediator was also significant (Effect = .7050 BootLLCI = .6282, and BootULCI = .7855).

- **Likelihood of commenting on a social media message.** The total effect of response efficacy on likelihood of commenting on a social media message was significant (Effect = .9018, t = 18.58, p < .001, LLCI = .8066, and ULCI = .9971). The direct effect of response efficacy on likelihood of commenting on a social media message was significant (Effect = .2116, t = 3.65, p < .001, LLCI = .0977, and ULCI = .3255). Perceived message effectiveness was a significant positive predictor of likelihood of commenting on a social media message in this model (coefficient = .86, t = 17.76, p < .001, LLCI = .7630, and ULCI = .9524). The indirect effect of response efficacy on likelihood of commenting on a social media message with perceived message effectiveness as the mediator was also significant (Effect = .6902, BootLLCI = .6001, and BootULCI = .7859).

Response Efficacy, Perceived Message Effectiveness, and Behavioral Expectation. PROCESS Model 4 was used to examine this relationship. The total effect of response efficacy on behavioral expectation was significant (Effect = .8618, t = 57.43, p < .001, LLCI = .8323, and ULCI = .8912). The direct effect of response efficacy on behavioral expectation was significant (Effect = .7772, t = 39.10, p < .001, LLCI = .7382, and ULCI = .8162). Perceived message effectiveness was a significant positive predictor of behavioral expectation in this model

(coefficient = .11, t = 6.36, p < .001, LLCI = .0736, and ULCI = .1393). The indirect effect of response efficacy on behavioral expectation with perceived message effectiveness as the mediator was also significant (Effect =.0846, BootLLCI = .0534, and BootULCI = .1166).

Research Question 6. The sixth research questions asks whether the likelihood of social media message engagement mediates the relationship between message receiver's self-efficacy and behavioral expectation.

Table 15

Direct and Indirect Effects of Self-Efficacy as Independent Variable and Social Media Message Engagement as Mediator on Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect
X = Self-efficacy M = Social media message engagement Y = Behavioral expectation	.8721**	.0271*	.0089 / .0463
X = Self-efficacy M = Likelihood of liking a message Y = Behavioral expectation	.8866**	.0162	-.0014 / .0352
X = Self-efficacy M = Likelihood of sharing a message Y = Behavioral expectation	.8771**	.0192*	.0031 / .0366
X = Self-efficacy M = Likelihood of commenting on a message	.8708**	.0197*	.0069 / .0331

Y = Behavioral expectation

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI.
*$p < .05$
** $p < .001$

Self-efficacy, Social Media Message Engagement, and Behavioral Expectation.

PROCESS Model 4 was used to examine this relationship. The total effect of self-efficacy on behavioral expectation was significant (Effect = .8992, $t = 68.79$, $p < .001$, LLCI = .8735, and ULCI = .9248). The direct effect of self-efficacy on behavioral expectation was significant (Effect = .8721, $t = 54.99$, $p < .001$, LLCI = .8409, and ULCI = .9032). Likelihood of social media message engagement was a significant positive predictor of behavioral expectation in this model (coefficient = .03, $t = 3.00$, $p = .003$, LLCI = .0118, and ULCI = .0563). The indirect effect of self-efficacy on behavioral expectation with likelihood of social media message engagement as the mediator was also significant (Effect = .0271, BootLLCI = .0089, and BootULCI = .0463).

The subcategories of social media message engagement were also examined as mediators between self-efficacy and behavioral expectation.

- **Likelihood of liking a social media message.** For likelihood of liking a social media message as mediator, the total effect of self-efficacy on behavioral expectation was significant (Effect = .9028, $t = 69.77$, $p < .001$, LLCI = .8774, and ULCI = .9282). The direct effect of self-efficacy on behavioral expectation was significant (Effect = .8866, $t = 57.57$, $p < .001$, LLCI = .8564, and ULCI = .9168). The likelihood of liking a social media message was not a significant positive predictor of behavioral expectation, although it approached significance

in this model (coefficient = .02, t = 1.94, p = .053, LLCI = -.0002, and ULCI = .0441). The indirect effect of self-efficacy on behavioral expectation with likelihood of liking a social media message as the mediator was also not significant (Effect = .0162, BootLLCI = -.0014, and BootULCI = .0352).

- **Likelihood of sharing a social media message.** For likelihood of sharing a social media message as mediator, the total effect of self-efficacy on behavioral expectation was significant (Effect = .8963, t = 67.94, p < .001, LLCI = .8704, and ULCI = .9222). The direct effect of self-efficacy on behavioral expectation was significant (Effect = .8771, t = 56.66, p < .001, LLCI = .8467, and ULCI = .9074). The likelihood of sharing a social media message was a significant positive predictor of behavioral expectation in this model (coefficient = .02, t = 2.36, p = .018, LLCI = .0038, and ULCI = .0407). The indirect effect of self-efficacy on behavioral expectation with likelihood of sharing a social media message as the mediator was also significant (Effect = .0192, BootLLCI = .0031, and BootULCI = .0366).
- **Likelihood of commenting on a social media message.** For likelihood of commenting on a social media message as mediator, the total effect of self-efficacy on behavioral expectation was significant (Effect = .8905, t = 65.01, p < .001, LLCI = .8636, and ULCI = .9174). The direct effect of self-efficacy on behavioral expectation was significant (Effect = .8708, t = 57.10, p < .001, LLCI = .8409, and ULCI = .9007). The likelihood of commenting on a social media message was a significant positive predictor of behavioral expectation in this model (coefficient = .02, t = 2.90, p = .004, LLCI = .0076, and ULCI = .0394).

The indirect effect of self-efficacy on behavioral expectation with likelihood of commenting on a social media message as the mediator was also significant (Effect = .0197, BootLLCI = .0069, and BootULCI = .0331).

Research Question 7. The seventh research question asked whether the likelihood of social media message engagement mediates the relationship between message receiver's response efficacy and behavioral expectation.

Table 16

Direct and Indirect Effects of Response Efficacy as Independent Variable and Social Media Message Engagement as Mediator on Behavioral Expectation

Variables	Direct Effect	Indirect Effect	BootLLCI / BootUCLI for Indirect Effect
X = Response efficacy M = Social media message engagement Y = Behavioral expectation	.8376**	.0278*	.0049 / .0509
X = Response efficacy M = Likelihood of liking a message Y = Behavioral expectation	.8371**	.0281*	.0060 / .0514
X = Response efficacy M = Likelihood of liking a message Y = Behavioral expectation	.8455**	.0140	-.0067 / .0353
X = Response efficacy M = Likelihood of liking a message Y = Behavioral expectation	.8492**	.0143	-.0008 / .0309

Note. BootLLCI stands for Boot Lower Level Confidence Interval. BootULCI stands for Boot Upper Level Confidence Interval. Effect is not significant if the value of 0 can be found between the BootLLCI.
*$p < .05$
** $p < .001$

Response Efficacy, Social Media Message Engagement, and Behavioral Expectation. PROCESS Model 4 was used to examine this relationship. The total effect of response efficacy on behavioral expectation was significant (Effect = .8654, $t = 57.49$, $p < .001$, LLCI = .8359, and ULCI = .8950). The direct effect of response efficacy on behavioral expectation was significant (Effect = .8376, $t = 44.67$, $p < .001$, LLCI = .8009, and ULCI = .8744). Likelihood of social media message engagement was a significant positive predictor of behavioral expectation in this model (coefficient = .03, $t = 2.48$, $p = .014$, LLCI = .0068, and ULCI = .0592). The indirect effect of response efficacy on behavioral expectation with likelihood of social media message engagement as the mediator was also significant (Effect = .0278, BootLLCI = .0049, and BootULCI = .0509).

The subcategories of social media message engagement also were examined as mediators between response efficacy and behavioral expectation.

- **Likelihood of liking a social media message.** For likelihood of liking a social media message as mediator, the total effect of response efficacy on behavioral expectation was significant (Effect = .8652, $t = 57.63$, $p < .001$, LLCI = .8358, and ULCI = .8947). The direct effect of response efficacy on behavioral expectation was significant (Effect = .8371, $t = 46.59$, $p < .001$, LLCI = .8019, and ULCI = .8724). The likelihood of liking a social media message was a significant positive predictor of behavioral expectation in this model (coefficient

= .04, *t* = 2.83, *p* = .005, LLCI = .0114, and ULCI = .0629). The indirect effect of response efficacy on behavioral expectation with likelihood of liking a social media message as the mediator was also significant (Effect = .0281, BootLLCI = .0060, and BootULCI = .0514).

- **Likelihood of sharing a social media message.** For likelihood of sharing a social media message as mediator, the total effect of response efficacy on behavioral expectation was significant (Effect = .8595, *t* = 56.00, *p* < .001, LLCI = .8294, and ULCI = .8896). The direct effect of response efficacy on behavioral expectation was significant (Effect = .8455, *t* = 45.56, *p* < .001, LLCI = .8091, and ULCI = .8819). The likelihood of sharing a social media message was not a significant positive predictor of behavioral expectation in this model (coefficient = .02, *t* = 1.34, *p* = .180, LLCI = -.0069, and ULCI = .0371). The indirect effect of response efficacy on behavioral expectation with likelihood of sharing a social media message as the mediator was also not significant (Effect = .0140, BootLLCI = -.0067, and BootULCI = .0353).
- **Likelihood of commenting on a social media message.** For likelihood of commenting on a social media message as mediator, the total effect of response efficacy on behavioral expectation was significant (Effect = .8634, *t* = 55.95, *p* < .001, LLCI = .8332, and ULCI = .8937). The direct effect of response efficacy on behavioral expectation was significant (Effect = .8492, *t* = 48.42, *p* < .001, LLCI = .8148, and ULCI = .8836). The likelihood of commenting on a social media message was not a significant positive predictor of behavioral expectation in this model (coefficient = .02, t = 1.71, p = .088, LLCI = -.0023, and ULCI = .0340).

The indirect effect of response efficacy on behavioral expectation with likelihood of commenting on a social media message as the mediator was also not significant (Effect = .0143, BootLLCI = -.0008, and BootULCI = .0309).

Gain and Loss Framing

Research Question 8. The eighth research question asked whether gain-framed or loss-framed empathy appeals are more likely to have a positive influence on a message receiver's a) behavioral expectation, b) state empathy, and c) likelihood of engagement with the social media message. Because this part of the experiment was run within-subjects, a paired-samples *t* test was used for analysis. Results are noted in Table 17.

Table 17

Differences in Gain- and Loss-framed Message Effects on Dependent Variables

Dependent Variable	*M*	*t*	*p*	Cohen's *d*
Behavioral Expectation	Gain = 5.48 Loss = 5.32	7.695	< .001	.215
State Empathy	Gain = 4.73 Loss = 4.62	4.709	<.001	.132
Social Media Message Engagement	Gain = 4.63 Loss = 4.35	10.425	< .001	.294
Engagement 1 (Liking)	Gain = 5.29 Loss = 4.92	11.555	< .001	.327
Engagement 2 (Sharing)	Gain = 4.56 Loss = 4.27	8.741	< .001	.255
Engagement 3 (Commenting)	Gain = 4.03	5.389	< .001	.164

	Loss = 3.86			
Self-efficacy [a]	Gain = 5.44 Loss = 5.20	10.613	< .001	.297
Response efficacy [a]	Gain = 5.48 Loss = 5.26	10.542	< .001	.295
Perceived message effectiveness [a]	Gain = 4.97 Loss = 4.74	9.563	< .001	.269

[a] These variables were not originally included in the research questions.

Behavioral Expectation. A paired-samples *t* test was calculated to compare the mean score of participant's behavioral expectation after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for behavioral expectation for gain-framed messages was 5.48 (*sd* = 1.06), and the mean score for behavioral expectation for loss-framed messages was 5.32 (*sd* = 1.15). Gain-framed messages had a significantly positive influence on participants' behavioral expectation compared with loss-framed messages (*t* (1,276) = 7.70, $p < .001$) (Cohen's *d* = .215).

State Empathy. A paired-samples *t* test was calculated to compare the mean score of participant's state empathy after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for state empathy for gain-framed messages was 4.73 (*sd* = 1.47), and the mean score for state empathy for loss-framed messages was 4.62 (*sd* = 1.48). Gain-framed messages had a significantly positive influence on participants' empathy compared with loss-framed messages (*t* (1,276) = 4.71, $p < .001$) (Cohen's *d* = .132).

Social Media Message Engagement. A paired-samples *t* test was calculated to compare the mean score of participant's likelihood of social media message engagement after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for likelihood of social media message engagement for gain-framed messages was 4.63 (*sd* = 1.41), and the mean score for likelihood of social media message engagement for loss-framed messages was 4.35 (*sd* = 1.52). Gain-framed messages had a significantly positive influence on participants' likelihood of social media message engagement compared with loss-framed messages (t (1,253) = 10.43, $p < .001$) (Cohen's $d = .294$).

Scores for participants on liking, sharing, or commenting on a post were also compared between gain-framed and loss-framed messages.

- **Likelihood of liking a social media message.** A paired-samples *t* test was calculated to compare the mean score of participant's likelihood of liking a social media message after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for likelihood of liking a social media message for gain-framed messages was 5.29 (*sd* = 1.42), and the mean score for likelihood of liking a social media message for loss-framed messages was 4.92 (*sd* = 1.54). Gain-framed messages had a significantly positive influence on participants' likelihood of liking a social media message compared with loss-framed messages (t (1,249) = 11.56, $p < .001$) (Cohen's $d = .327$).
- **Likelihood of sharing a social media message.** A paired-samples *t* test was calculated to compare the mean score of participant's likelihood of sharing a social media message after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for likelihood of sharing a social

media message for gain-framed messages was 4.56 (*sd* = 1.65), and the mean score for likelihood of sharing a social media message for loss-framed messages was 4.27 (*sd* = 1.75). Gain-framed messages had a significantly positive influence on participants' likelihood of sharing a social media message compared with loss-framed messages (t (1,175) = 8.74, $p < .001$) (Cohen's $d = .255$)

- **Likelihood of commenting on a social media message.** A paired-samples *t* test was calculated to compare the mean score of participant's likelihood of commenting on a social media message after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for likelihood of commenting on a social media message for gain-framed messages was 4.03 (*sd* = 1.86), and the mean score for likelihood of commenting on a social media message for loss-framed messages was 3.86 (*sd* = 1.93). Gain-framed messages had a significantly positive influence on participants' likelihood of commenting on a social media message compared with loss-framed messages (t (1,073) = 5.39, $p < .001$) (Cohen's $d = .164$).

Other Message Outcome Variables. The eighth research question did not ask whether a gain- or loss-framed message was more likely to influence self-efficacy, response efficacy, or perceived message effectiveness. However, in light of message frame results that favor gain-framed messages' effect on the other message outcome variables, and the fact that the participants' rating of self-efficacy, response efficacy, and perceived message effectiveness followed each message in the experiment, three other paired-sample *t* tests were conducted.

A paired-samples *t* test was calculated to compare the mean score of participant's self-efficacy after reading a gain-framed message to the mean score after reading a loss-framed

message. The mean score for self-efficacy for gain-framed messages was 5.44 (*sd* = 1.03), and the mean score for self-efficacy for loss-framed messages was 5.20 (*sd* = 1.17). Gain-framed messages had a significantly positive influence on participants' self-efficacy compared with loss-framed messages (t (1,276) = 10.61, $p < .001$) (Cohen's d = .297).

A paired-samples t test was calculated to compare the mean score of participant's response efficacy after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for response efficacy for gain-framed messages was 5.48 (*sd* = 1.02), and the mean score for response efficacy for loss-framed messages was 5.26 (*sd* = 1.15). Gain-framed messages had a significantly positive influence on participants' response efficacy compared with loss-framed messages (t (1,276) = 10.54, $p < .001$) (Cohen's d = .295).

A paired-samples t test was calculated to compare the mean score of participant's perceived message effectiveness after reading a gain-framed message to the mean score after reading a loss-framed message. The mean score for perceived message effectiveness for gain-framed messages was 4.97 (*sd* = 1.23), and the mean score for perceived message effectiveness for loss-framed messages was 4.74 (*sd* = 1.34). Gain-framed messages had a significantly positive influence on participants' perceived message effectiveness compared with loss-framed messages (t (1,265) = 9.56, $p < .001$) (Cohen's d = .269).

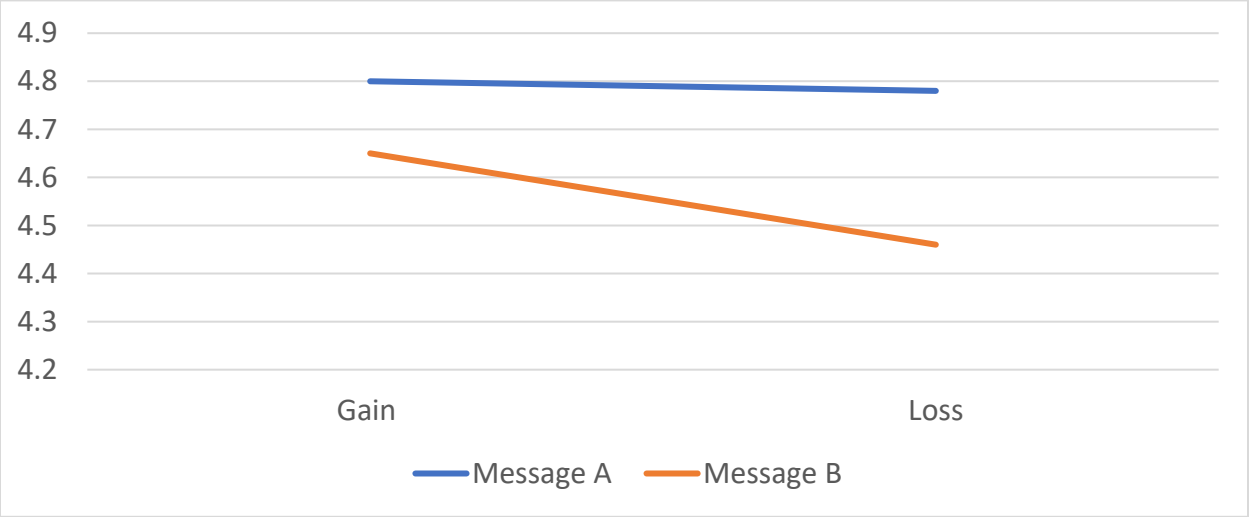
Message Replication. A repeated measures 2x2 ANOVA was used to examine whether message replication (A versus B) interacted with the gain/loss frame on the dependent variables listed above: behavioral expectation, state empathy, and social media message engagement. A significant interaction means that the different levels of one independent variable have a different relationship with different levels of another independent variable (Meyers et al., 2006).

A significant main effect was found for message frame condition on behavioral expectation (F (1, 1,252) =56.06, $p < .001$, $\eta^2_p = .043$), such that a gain-framed message (M = 5.48, SE = .03) was more positively rated on behavioral expectation than a loss-framed message (M = 5.32, SE = .03). The main effect for message replication on behavioral expectation was not significant (F (1, 1,252) = .288, p = .592). There was no significant interaction between message frame condition and message replication for behavioral expectation. (F (2, 1,252) = .025, p = .874).

A significant main effect was found for message frame condition on state empathy (F (1, 1,252) =20.52, $p < .001$, $\eta^2_p = .016$), such that a gain-framed message (M = 4.73, SE = .04) was more positively rated on state empathy than a loss-framed message (M = 4.62, SE = .04). A significant main effect was found for message replication on state empathy (F (1, 1,252) =78.54, $p < .001$, $\eta^2_p = .059$), such that the A messages (M = 4.79, SE = .04) were rated significantly higher on state empathy than the B messages (M = 4.56, SE = .04). A significant interaction was found for message frame condition and message replication on state empathy (F (1, 1,252) =15.60, $p < .001$, $\eta^2_p = .012$), such that the messages in the Loss A (M = 4.78, SE = .04) condition were significantly more likely to be rated higher than the messages in the Gain B condition (M = 4.66, SE = .05).

Figure 9

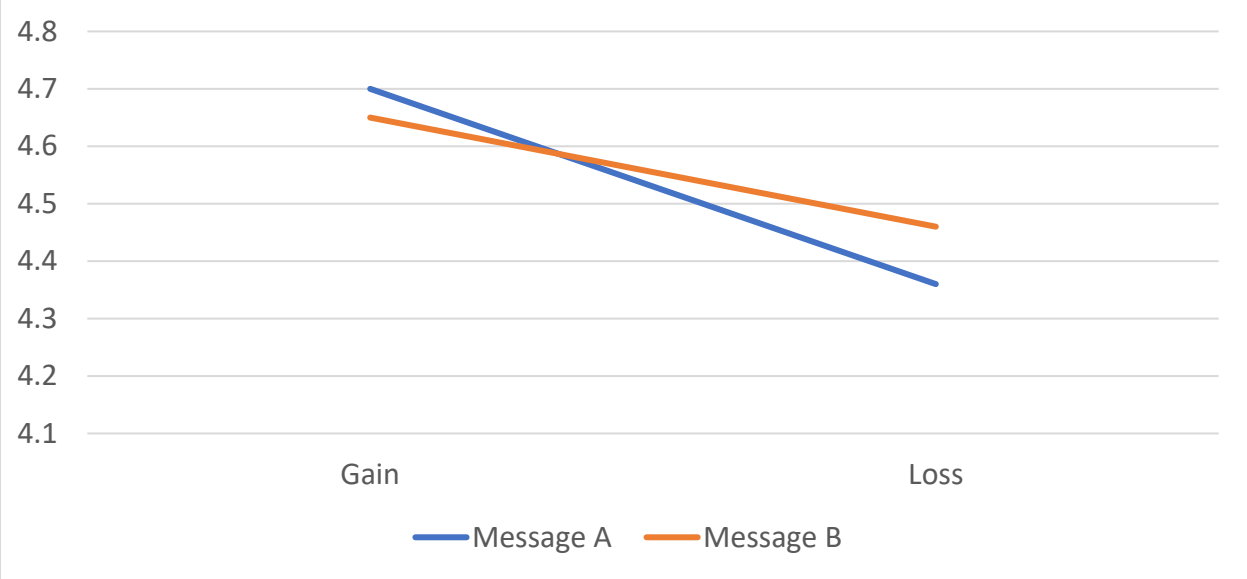
Interaction for Message Frame and Message Replication on State Empathy



A significant main effect was found for message frame condition on likelihood of social media message engagement (F (1, 1,171) = 112.47, p < .001, η^2_p = .088), such that a gain-framed message (M = 4.68, SE = .04) was more positively rated on likelihood of social media message engagement than a loss-framed message (M = 4.41, SE = .04). The main effect for message replication on likelihood of social media message engagement was not significant (F (1, 1,171) = 1.01, p = .316). A significant interaction was found for message frame condition and message replication on likelihood of social media message engagement (F (1, 1,171) = 12.88, p < .001, η^2_p = .011), such that the loss messages were significantly more likely to be rated higher in the B (M = 4.46, SE = .05) condition than the A condition (M = 4.36, SE = .05), and the gain messages were significantly more likely to be rated higher in the A condition (M = 4.70, SE = .04) than the B condition (M = 4.65, SE = .04).

Figure 10

Interaction for Message Frame and Message Replication on Liklihood of Social Media Message Engagment



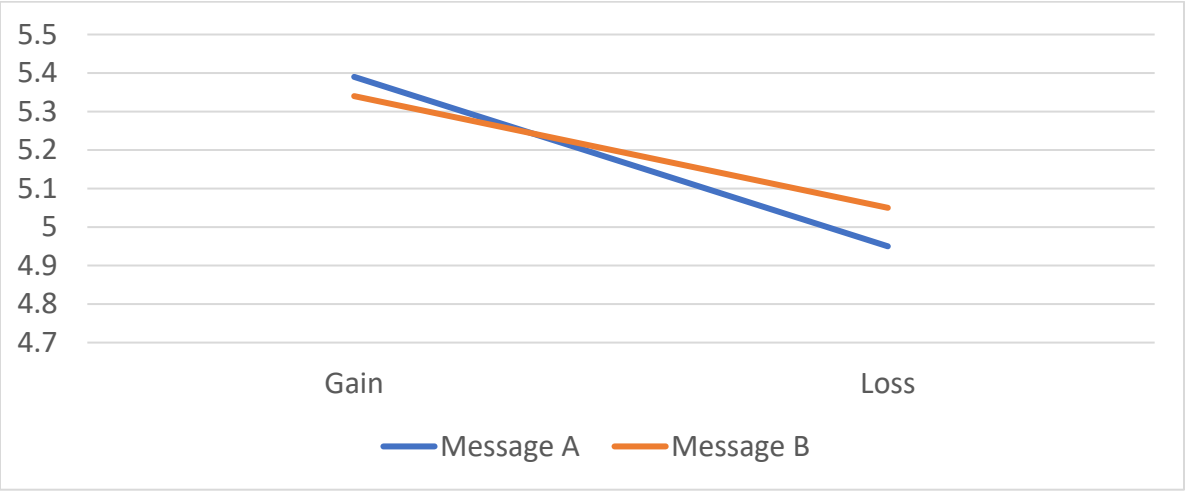
Message replication was also examined for the three subcategories of social media message engagement.

- **Likelihood of liking a social media message.** A significant main effect was found for message frame condition on likelihood of liking a social media message (F (1, 1,148) = 128.37, p < .001, η^2_p = .101), such that a gain-framed message (M = 5.17, SE = .04) was more positively rated on likelihood of liking a social media message than a loss-framed message (M = 5.20, SE = .04). The main effect for message replication on likelihood of liking a social media message was not significant (F (1, 1,148) = .887, p = .346). A significant interaction was found for message frame condition and message replication on likelihood of liking a social media message (F (1, 1,148) = 7.74, p = .005, η^2_p = .007), such that the loss messages were significantly more likely to be rated lower in the A condition (M =

4.95, *SE* = .04) than the B condition (*M* = 5.05, *SE* = .04), and the gain messages were significantly more likely to be rated higher in the A condition (*M* = 5.39, *SE* = .04) than the B condition (*M* = 5.34, *SE* = .04).

Figure 11

Interaction for Message Frame and Message Replication on Likelihood of Liking a Social Media Message

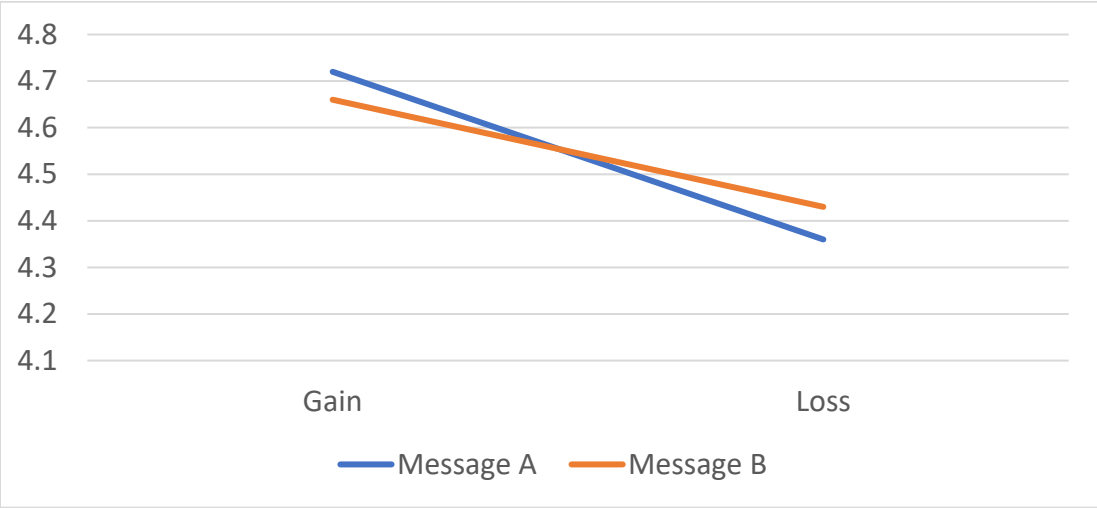


- **Likelihood of sharing a social media message.** A significant main effect was found for message frame condition on likelihood of sharing a social media message (*F* (1, 1,028) = 71.24, *p* < .001, η^2_p = .065), such that a gain-framed message (*M* = 4.67, *SE* = .05) was more positively rated on likelihood of sharing a social media message than a loss-framed message (*M* = 4.40, *SE* = .05). The main effect for message replication on likelihood of sharing a social media message was not significant (*F* (1, 1,028) = .043, *p* = .835). A significant interaction was found for message frame condition and message replication on likelihood of sharing a social media message (*F* (1, 1,028) = 5.25, *p* = .022, η^2_p = .005), such that the loss messages were significantly more likely to be rated lower

in the A condition (*M* = 4.36, *SE* = .05) than the B condition (*M* = 4.43, *SE* = .05), and the gain messages were significantly more likely to be rated higher in the A condition (*M* = 4.72, *SE* = .05) than the B condition (*M* = 4.66, *SE* = .05).

Figure 12

Interaction for Message Frame and Message Replication on Likelihood of Sharing a Social Media Message

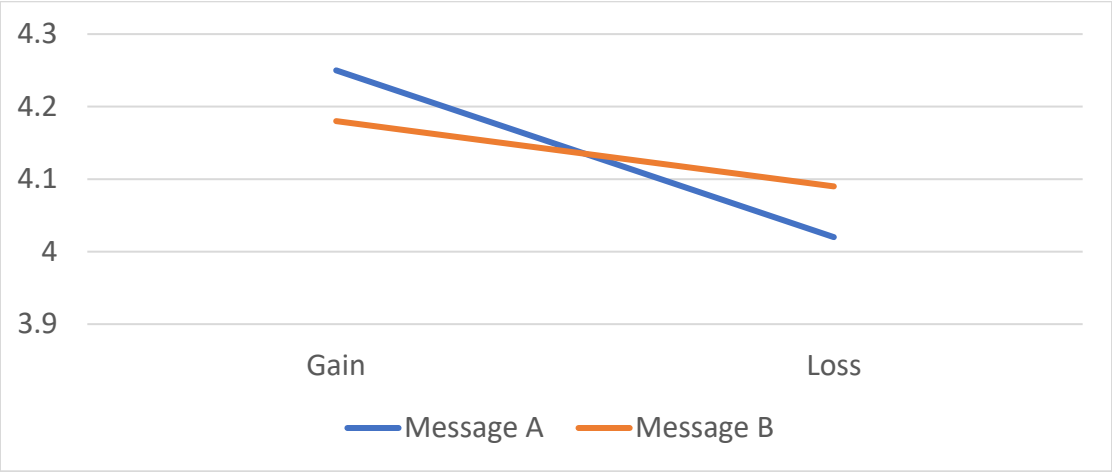


- **Likelihood of commenting on a social media message.** A significant main effect was found for message frame condition on likelihood of commenting on a social media message (F (1, 915) = 24.78, $p < .001$, $\eta^2_p = .026$), such that a gain-framed message (*M* = 4.21, *SE* = .06) was more positively rated on likelihood of commenting on a social media message than a loss-framed message (*M* = 4.06, *SE* = .06). The main effect for message replication on likelihood of commenting on a social media message was not significant (F (1, 915) = .001, $p = .971$). A significant interaction was found for message frame condition and message replication on likelihood of commenting on a social media message (F (1, 915) = 5.55, $p = .019$, $\eta^2_p = .006$), such that the gain messages were significantly more

likely to be rated higher in the A condition (*M* = 4.25, *SE* = .06) than the B condition (*M* = 4.18, *SE* = .05), and loss messages were significantly more likely to be rated lower in the A condition (*M* = 4.02, *SE* = .07) than the B condition (*M* = 4.09, *SE* = .07).

Figure 13

Interaction for Message Frame and Message Replication on Likelihood of Commenting on a Social Media Message



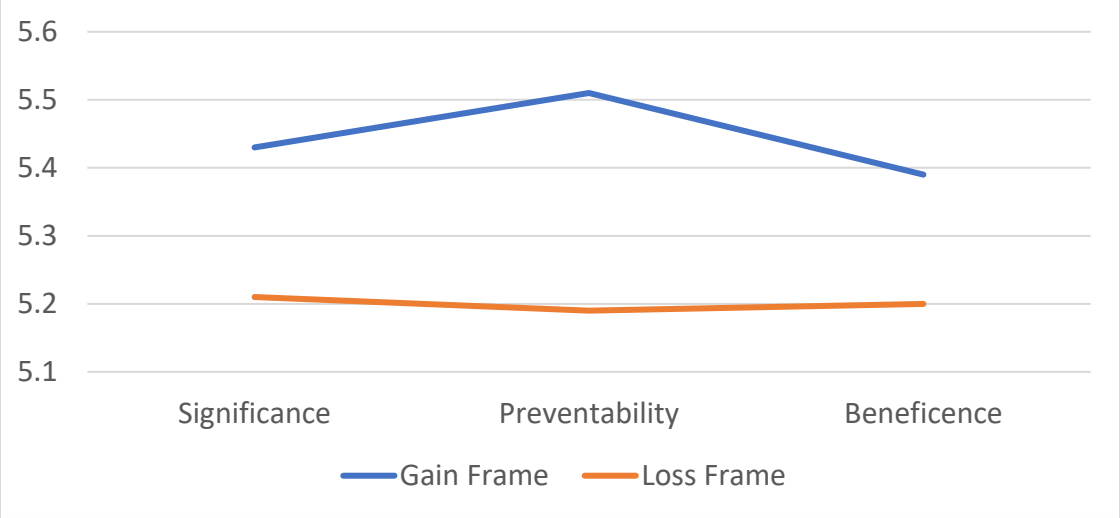
Research Question 9. The ninth research question asked whether gain- or loss-framed messages interact with the effect of the message construct on a message receiver's a) self-efficacy, b) response efficacy, c) perceived message effectiveness, d) likelihood of message engagement, and e) behavioral expectation.

A 3 x 2 mixed-design ANOVA was calculated to examine the effects of the message construct condition (significance, preventability, and beneficence) and framing condition (gain or loss). In this case, pairwise analysis through estimated marginal means tables was used if a significant interaction effect was found (Kane, 2012).

Self-efficacy. No significant main effect was found for message construct condition on self-efficacy (F (2, 1,274) = 0.26, p = .783). A significant main effect was found for message frame on self-efficacy (F (1, 1,274) = 113.32, p < .001, η^2_p = .082), such that gain-framed messages (M = 5.44, sd = 1.03) were rated higher in self-efficacy than loss-framed messages (M = 5.20, sd = 1.17). A significant interaction of message construct condition and message frame was also found (F (2, 1,274) = 4.44, p = .012, η^2_p = .007), such that those in the preventability condition rated perceived self-efficacy highest when the message was gain-framed (M = 5.51, sd = 1.00) and lowest when it was loss-framed (M = 5.19, sd = 1.25).

Figure 14

Interaction for Message Frame and Message Construction Condition on Self-Efficacy



Response efficacy. No significant main effect was found for message construct condition on response efficacy (F (2, 1,274) = .20, p = .823). A significant main effect for message frame on response efficacy was found (F (1, 1,274) = 111.35, p < .001, η^2_p = .080), such that gain-framed messages (M = 5.48, sd = 1.02) were rated higher in response efficacy than loss-framed

messages (M = 5.26, sd = 1.15). No significant interaction was found for message construct condition and message frame in response efficacy (F (2, 1,274) = 2.60, p = .074).

Perceived Message Effectiveness. A significant main effect was found for message construct condition on perceived message effectiveness (F (2, 1,263) = 4.99, p = .007, η^2_p = .008), such that messages in the significance message construct condition (M = 4.98, sd = 1.17) were rated higher in perceived message effectiveness than messages in the preventability (M = 4.74, sd = 1.30) and beneficence (M = 4.86, sd = 1.17) message conditions. A significant main effect was found for message frame (F (1, 1,263) = 91.19, p < .001, η^2_p = .067) on perceived message effectiveness, such that gain-framed messages (M = 4.97, sd = 1.23) were rated higher in perceived message effectiveness than loss-framed messages (M = 5.74, sd = 1.34). No significant interaction of message construct condition and message frame was found in perceived message effectiveness (F (2, 1,263) = .481, p = .618).

Likelihood of Social Media Message Engagement. A significant main effect was found for message construct condition on likelihood of social media message engagement (F (2, 1,251) = 3.86, p = .021, η^2_p = .006), such that messages in the significance message construct condition (M = 4.53, sd = 1.38) were rated higher in likelihood of social media message engagement than messages in the preventability (M = 4.32, sd = 1.50) and beneficence (M = 4.37, sd = 1.40) message conditions. A significant main effect was found for message frame in likelihood of social media message engagement (F (1, 1,251) = 108.50, p < .001, η^2_p = .080), such that gain-framed messages (M = 4.63, sd = 1.41) were rated higher in likelihood of social media message engagement than loss-framed messages (M = 4.35, sd = 1.52). No significant interaction was found for message construct condition and message frame in likelihood of social media message engagement (F (2, 1,251) = 2.11, p = .121).

- **Likelihood of liking a social media message.** A significant main effect was found for message construct condition on likelihood of liking a social media message (F (2, 1,247) = 4.17, p = .016, η^2_p = .007), such that messages in the significance message construct condition (M = 5.19, sd = 1.35) were rated highest in likelihood of social media message engagement compared with messages in the preventability (M = 4.97, sd = 1.47) and beneficence (M = 5.07, sd = 1.35) message conditions. A significant main effect was found for message frame on likelihood of liking a social media message (F (1, 1,247) = 132.89, p < .001, η^2_p = .096), such that gain-framed messages (M = 5.29, sd = 1.42) were rated higher in likelihood of liking a social media message than loss-framed messages (M = 4.92, sd = 1.54). No significant interaction was found for message construct condition and message frame in likelihood of liking a social media message (F (2, 1,247) = 1.50, p = .223).
- **Likelihood of sharing a social media message.** A significant main effect was found for message construct condition on likelihood of sharing a social media message (F (2, 1,173) = 3.88, p = .021, η^2_p = .007), such that messages in the significance message construct condition (M = 4.52, sd = 1.61) were rated highest in likelihood of social media message engagement compared with messages in the preventability (M = 4.25, sd = 1.47) and beneficence (M = 4.24, sd = 1.63) message conditions. A significant main effect was found for message frame on likelihood of sharing a social media message (F (1, 1,173) = 75.73, p < .001, η^2_p = .061), such that gain-framed messages (M = 4.56, sd = 1.65) were rated higher in likelihood of sharing a social media message than loss-framed messages (M = 4.27, sd = 1.75). No significant interaction was found for message construct

condition and message frame in likelihood of sharing a social media message (F (2, 1,173) = 1.27, p = .281).

- **Likelihood of commenting on a social media message.** No significant main effect was found for message construct condition on likelihood of commenting on a social media message (F (2, 1,071) = .21, p = .813). A significant main effect for message frame was found (F (1, 1,071) = 29.02, p < .001, η^2_p = .026), such that gain-framed messages (M = 4.03, sd = 1.86) were rated higher in likelihood of commenting on a social media than loss-framed messages (M = 3.86, sd = 1.93). No significant interaction was found for message construct condition and message frame in likelihood of commenting on a social media message (F (2, 1,071) = .67, p = .510),

Behavioral Expectation. No significant main effect was found for message construct condition (F (2, 1,274) = .01, p = .986) on behavioral expectation. A significant main effect for message frame on behavioral expectation was found (F (1, 1,274) = 59.37, p < .001, η^2_p = .045), such that gain-framed messages (M = 5.48, sd = 1.06) were rated higher in behavioral expectation than loss-framed messages (M = 5.32, sd = 1.15). No significant interaction was found for message construct condition and message frame in behavioral expectation (F (2, 1,274) = 2.87, p = .057).

Research Question 10. The tenth research question asked whether state empathy mediates the relationship between message frame (gain/loss) and a message receiver's a) likelihood of message engagement and b) behavioral expectation. In this study, mediating variables in a within-subjects design were analyzed using MEMORE for SPSS (www.akmontoya.com). MEMORE Model 1 was used to evaluate this research question. Results can be found in Table 18.

Table 18

Tests of State Empathy as a Mediator Between Message Frame and Dependent Variables

Variables	Total Effect	Direct Effect	Indirect Effect	BootLLCI / BootUCLI
X = Message frame M = State empathy Y = Social media message engagement	.2760	.2347**	.0413*	.0208 / .0655
X = Message frame M = State empathy Y= Likelihood of liking a message	.3780	.3335**	.0445*	.0218 / .0701
X = Message frame M = State empathy Y= Likelihood of sharing a message	.2895	.2442**	.0454*	.0226 / .0718
X = Message frame M = State empathy Y= Likelihood of commenting on a message	.1653	.1284**	.0369*	.0186 / .0598
X = Message frame M = State empathy Y= Behavioral expectation	.1604	.1106**	.0498*	.0272 / .0748

Message Frame (Gain/Loss), State Empathy, and Likelihood of Social Media Message Engagement. In this model, the total effect of message frame (gain/loss) on likelihood of social media message engagement was significant (Effect = .2760, $p < .001$, LLCI = .2240, and ULCI = .3279). The direct effect of message frame (gain/loss) on likelihood of social media message

engagement was significant (Effect = .2347, $p < .001$, LLCI = .1861, and ULCI = .2833). The indirect effect of message frame (gain/loss) on likelihood of social media message engagement with state empathy as a mediator was also significant (Effect = .0413, BootLLCI = .0208, and BootULCI = .0655).

The subcategories of social media message engagement also were examined in this analysis.

In this model, the total effect of message frame (gain/loss) on likelihood of liking a social media message was significant (Effect = .3780, $p < .001$, LLCI = .3138, and ULCI = .4422). The direct effect of message frame (gain/loss) on likelihood of liking a social media message was significant (Effect = .3335, $p < .001$, LLCI = .2733, and ULCI = .3938). The indirect effect of message frame (gain/loss) on likelihood of liking a social media message with state empathy as a mediator was also significant (Effect = .0445, BootLLCI = .0218, and BootULCI = .0701).

In this model, the total effect of message frame (gain/loss) on likelihood of sharing a social media message was significant (Effect = .2895, $p < .001$, LLCI = .2246, and ULCI = .3545). The direct effect of message frame (gain/loss) on likelihood of sharing a social media message was significant (Effect = .2442, $p < .001$, LLCI = .1824, and ULCI = .3059). The indirect effect of message frame (gain/loss) on likelihood of sharing a social media message with state empathy as a mediator was also significant (Effect = .0454, BootLLCI = .0226, and BootULCI = .0718).

In this model, the total effect of message frame (gain/loss) on likelihood of commenting on a social media message was significant (Effect = .1653, $p < .001$, LLCI = .1051, and ULCI = .2254). The direct effect of message frame (gain/loss) on likelihood of commenting on a social media message was significant (Effect = .1284, $p < .001$, LLCI = .0697, and ULCI = .1871). The

indirect effect of message frame (gain/loss) on likelihood of commenting on a social media message with state empathy as a mediator was also significant (Effect = .0369, BootLLCI = .0186, and BootULCI = .0598).

Message Frame (Gain/Loss), State Empathy, and Behavioral Expectation. In this model, the total effect of message frame (gain/loss) on behavioral expectation was significant (Effect = .1604, $p < .001$, LLCI = .1195, and ULCI = .2013). The direct effect of message frame (gain/loss) on behavioral expectation was significant (Effect = .1106, $p < .001$, LLCI = .0754, and ULCI = .1457). The indirect effect of message frame (gain/loss) on behavioral expectation with state empathy as a mediator was also significant (Effect = .0498, BootLLCI = .0272, and BootULCI = .0748).

Miscellaneous Tests

Order Effects

Order effects were examined for all 72 orders and then for whether the participant saw a gain-framed or loss-framed message first. The researcher computed a one-way ANOVA examining the means of the 72 orders. No significant difference was found for the dependent variables of perceived message effectiveness (F (71, 1,206) = 1.17, p = .161), self-efficacy (F (71, 1,213) = .96, p = .575), response efficacy (F (71, 1,212) = .951, p = .595), state empathy (F (71, 1,213) = .99, p = .502), behavioral expectation (F (71, 1,212) = .93, p = .654), or likelihood of social media message engagement (F (71, 1,208) = 1.170, p = .16).

The researcher also examined how many of the participants saw a gain-framed message first or a loss-framed message first, and the results showed that about 49% (n = 628) of the respondents saw a gain-framed message first, and about 51% (n = 657) saw a loss-framed message first. A paired sample t test was calculated to compare the mean score between the

dependent variables for respondents who saw a loss-framed message first and those who saw a gain-framed message first. In regards to whether a participant saw a loss-framed or gain-framed message first, no significant difference in mean scores was found for the dependent variables of perceived message effectiveness (t (1,276) = .06, p = .949), self-efficacy (t (1,283) = .03, p = .977), response efficacy(t (1,282) = .03, p = .978), state empathy (t (1,283) = 1.33, p = .183), behavioral expectation (t (1,282) = -.35, p = .726), or likelihood of social media message engagement (t (1,278) = .38, p = .703).

Demographics

Tests were run to test that the demographic variables were independent of message construct condition.

A chi-square test of independence was calculated comparing gender indication and message construct condition. No significant relationship was found (χ^2 (4) = 5.11, p = .276).

A chi-square test of independence was calculated comparing campus affiliation and message construct condition. No significant relationship was found (χ^2 (2) = .664, p = .718).

A chi-square test of independence was calculated comparing race identification and message construct condition. No significant relationship was found (χ^2 (12) = 8.957, p = .707).

A one-way ANOVA showed no significant difference in the number of individuals of different ages in the message construct conditions (F (2, 1,282) = .001, p = .999).

Chapter 8: Discussion and Application

In this study, the goal was to generate a model for social media message design for suicide gatekeepers. The first part of the study used a grounded theory (GT) approach to research and develop a model. The GT research outlined important message constructs that fit with the health belief model (Green et al., 2020; Rosenstock et al., 1988) and included *significanc*e of the suicide threat (perceived threat), *preventability* of suicide (benefits of action), and *beneficence* of discussing suicide (benefits of action). In addition, support for gain- or loss-framed empathy appeals was found for possible influence on perceived message effectiveness, likelihood of social media message engagement (to include the behaviors of liking, sharing, or commenting on a social media message), and behavioral expectation. Behavioral expectation on the part of a suicide gatekeeper would include performing the behaviors of *detecting* signs of suicide ideation, *engaging* a suicidal peer or acquaintance in conversation about their plans to hurt themselves, and *connecting* suicidal individuals to resources.

In the second part of this study, the research concentrated on gaining a better understanding of the preliminary model in regards to what type of wording in messages ultimately best influences suicide gatekeeper's behavioral expectation. Not only would the research suggest the best message constructs and frames to use in social media messages aimed at suicide gatekeepers, but it would also demonstrate areas for further research. Therefore, two messages using gain and loss frames (four total) were designed for each of the message construct conditions of significance, preventability, and beneficence. About 1,285 participants who fit the research criteria were exposed to one of the message construct conditions, read two gain-framed and two loss-framed messages, and rated post-message statements for all four messages. This study was appropriately powered (Faul et al., 2009) for comparing these messages, which would

be estimated to have small effect sizes based on previous studies (O'Keefe & Jensen, 2007, 2009).

The test messages used in the experimental study controlled for social media message visuals, source, platform, and length in order to best focus on what wording would lead to the most positive outcomes for the message outcome dependent variables of self-efficacy, response efficacy, perceived message effectiveness, likelihood of social media message engagement, state empathy, and behavioral expectation. This is a discussion of the results of that experiment, and it includes connections to the findings generated by the GT research.

Is Significance Significant?

Message construct condition included the constructs of significance, preventability, and beneficence. This condition was tested between subjects in this study, and the study was appropriately powered to detect small effect sizes (Faul et al. 2009).

The message constructs were designed based on three common misconceptions identified in the GT research supplied by the data from interview participants, digital training articles and videos, online narratives, and academic literature. These misconceptions included the false ideas that suicide ideation is not a serious threat to life, that suicide is not preventable, and that discussing suicide can cause harm by planting the idea in someone's head. The message constructs were intended to combat these misconceptions, and each was connected to elements of the health belief model (Green et al., 2020; Rosenstock et al., 1988) in the following ways:

- Message construct of significance: signs of suicide ideation and talking about harming or killing oneself is a serious threat to life (perceived threat of danger to health).

- Message construct of preventability: suicide can be prevented, and the process of prevention is aided by the intervention of friends, family members, and acquaintances (suicide gatekeepers) (perceived benefit of action).
- Message construct of beneficence: talking about suicide with friends will not plant the idea in their heads and may actually bring relief and aid in prevention (perceived benefit of action).

While preventability and beneficence are linked more closely together (the benefit of talking to a friend may both help a friend and prevent suicide), the construct of significance focuses on the idea that suicide is a serious threat. In fact, one interview participant in the GT study said, "When your friend talks about taking his or her life, that person is threatening the life of your *friend*."

So, is the construct of significance more significant than the constructs of preventability and beneficence in social media message design for suicide gatekeepers? The experiment gave some support for this, but certainly not conclusive support. Those who saw the messages with the significance construct rated perceived message effectiveness highest, but only significantly higher than those who saw the messages with the preventability construct. No significant difference was found between messages in the significance and beneficence construct for perceived message effectiveness, or between the beneficence and preventability constructs. In addition, those who saw the messages with the significance construct rated the likelihood of sharing the social media message significantly higher than both of the other groups (preventability and beneficence).

Yet, these were the only message outcome dependent variables that were influenced significantly by message construct in this study. The effect sizes were small—very small, in this

case, with both effect sizes equal in size (η^2_p = .006). No significant differences were found among the three message constructs for the message outcome dependent variables of self-efficacy, response efficacy, behavioral expectation, overall likelihood of social media message engagement, or likelihood of liking or commenting on a social media message.

One other item to note from the message construct condition is the interaction of gain and loss framing on preventability. When a gain frame was used, messages with the preventability construct were rated the highest on self-efficacy, and when a loss frame was used, messages with the preventability construct were rated the lowest on self-efficacy.

Theoretical Implications

The health belief model has almost 50 years of research behind its constructs and the structure of those constructs (Green et al., 2020). The constructs in this study were linked to health belief model constructs that have been established as being effective in social media messages (Guidry et al., 2020). While this research showed only mild support for the significance construct (perceived threat), social media messages focusing on intervention and other health behaviors continue to be an area that deserves exploration. The brevity of messages can affect people's behavior (Gligorić et al., 2018; Shleyner, 2018); thus, one might further examine the interplay of that variable with message construct, as well as the use of visuals and sources (Edney et al., 2018) to ascertain whether message construct interacts with these important aspects of social media messages.

In addition, the effect of gain and loss framing in regards to messages constructed with the theme of suicide preventability showed the possibility of interaction between message construct condition and message frame. With a loss-frame causing those who saw the preventability message to rate their self-efficacy the lowest, research may need more focus on

how gain and loss framing can affect the way people receive a certain message and make assumptions about their capabilities of performing an intervention behavior.

Practical Implications

This research notes that any advantage for suicide prevention professionals designing social media messages, no matter how small, should be mentioned. If a significance construct does strengthen perceived message effectiveness and encourage message sharing, then it may be a worthwhile construct for social media messages aimed at suicide gatekeepers. The GT study emphasizes that these message constructs are critical to combatting prevalent myths that have plagued suicide prevention efforts and should be addressed. The concern in the field about these myths that was supported by the GT methods continues to command attention and focus.

However, while all three of these message constructs could be useful for motivating behavior by suicide gatekeepers, without a control condition, the necessity of these three message constructs for motivating that behavior cannot be confirmed. In addition, should practitioners avoid loss-framed messages focused on prevention? Perhaps, but as the interviews in the GT study all emphasized, a message that encourages intervention is better than no message at all. However, the possible effect of message construct on self-efficacy is important—all the interview participants also emphasized that people need to feel capable of performing an intervention behavior. In short, any social media message impact on self-efficacy, positive or negative, should be noted.

Limitations and Opportunities in Future Research for Message Constructs

Based on the discussion above, although message construct results in this experiment were limited, these constructs serve an important purpose in debunking myths about suicide intervention, and they may continue to deserve research attention. Questions that remain

unaddressed in regards to message constructs for social media message design for suicide gatekeepers include (but are not limited to) the following:

- Should message constructs be tested with a control group present, to ascertain whether message construct functions as an influential independent variable on suicide gatekeeper response to the message and behavioral expectation?
- How does gain and loss framing of messages interplay with message construct condition? Is there more to be explored? With gain-framed messages showing significant influence in the message outcome variables? What might we learn if we control for gain or loss framing in future studies?

A Gain for Suicide Gatekeepers

The most significant finding in the research may stem from the examination of gain- and loss-framed empathy appeals. A significant positive influence of the gain-framed messages was found on all the message outcome dependent variables, including likelihood of social media message engagement (and its subcategories of liking, sharing, and commenting on a social media message), state empathy, behavioral expectation, self-efficacy, response efficacy, and perceived message effectiveness.

The gain-framed wording included the following:

- When you reach out to a friend, you help them feel less alone and show that someone cares (Gain A).
- When you reach out to your friend, you help by showing that someone is there for them (Gain B).

The loss-framed wording included the following:

- When you don't reach out to your friends, they feel more alone and that no one cares (Loss A).
- When you ignore signs of suicide, you miss an opportunity (Loss B).

In short, the participants responded more favorably to the message outcome dependent variables when the message led with one of the gain-framed phrases.

One concern here could be the possibility of message contamination effects. However, the order effects showed no significant differences in the dependent variables in regards to the 72 possible orders of the messages and, perhaps even more importantly, there were no differences in whether a participant saw a gain- or loss-framed message first.

Theoretical Implications

The effects of gain and loss framing of messages are rooted in prospect theory (Kahneman & Tversky, 1979), which suggests that loss frames work better in some situations because they may convey a heavier emotional impact. Gain and loss framing has been a focus of considerable research in message design (Borah & Xiao, 2018 Cheng et al., 2011; Eguren et al., 2021; Kim & Kim, 2014). This study used a within-subjects research design for gain and loss framing with a final sample size of 1,285, which was considerably powered to discover small effect sizes. In this research, gain-framed messages were significantly more likely to positively influence the message outcome dependent variables and perhaps move a suicide gatekeeper closer to performing the actual behavior of suicide intervention on behalf of a peer. In prior health behavior research on gain and loss framing, gain-framed messages have shown indication of encouraging behavioral intention of safe behaviors (Kim & Kim, 2014), as well as certain disease prevention behaviors (O'Keefe & Jensen, 2007), while loss-framed messages appear to be more motivating in the case of disease detection (O'Keefe & Jensen, 2009). Perhaps loss-

framed messages would be more likely to encourage suicide gatekeepers to detect suicidal signs in their friends, but this would need further exploration. For now, this research supported gain-framed messages as more positively influencing behavioral expectation of intervening on behalf of a suicidal friend.

Effect size matters? In this study, the Cohen's *d* on the message outcome dependent variables ranged from .164 to .327, showing small effect sizes for message framing. Effect sizes have been discussed as an important element to report in research studies in addition to significance values. While the *p* value can indicate whether we can make a claim about a significant positive or negative effect of one independent variable on another, an effect size informs us of the degree of that positive or negative influence and helps us better understand the effectiveness of an independent variable (Sullivan, 2012). When one is designing a message to encourage a behavior, such as designing a social media message that asks suicide gatekeepers to intervene on behalf of a suicidal peer, the question is whether gain or loss framing is worth the time it takes to consider it, in light of small effect sizes.

Some researchers do not think that it is. The argument raised by O'Keefe and Hoeken (2021) is that framing in message design does not make enough difference to be worth the time of considering it. This assertion is based on an analysis of very small effects sizes (influence) of either a gain or loss frame. They warn that a hyper-focus on gain and loss framing does not make sense when it accounts for so little variance.

However, Prentice and Miller (1992) discussed this very situation over two decades ago. They argued that a large effect size is not the only indication of an "important" effect; they state, "Showing that an effect holds even under the most unlikely circumstances possible can be as impressive as (or, in some cases, perhaps even more impressive than) showing that it accounts

for a great deal of variance" (p. 163). Without the difference in message frame (gain/loss), would there be a more positive reaction on the message outcome dependent variables in this study? The fact that the gain-framed messages impacted all of the message-outcome dependent variables more than the loss-framed messages supports theoretical importance of gain and loss framing, even in light of its continued smaller effect sizes.

Practical Implications

If gain-framed social media messages for suicide gatekeepers do have a significantly positive effect (even if small) on perceived message effectiveness, likelihood of social media message engagement, state empathy, and behavioral expectation, then why ignore the fact?

If participants in this study indicated more favorable message outcomes when reading gain-framed messages, then a suicide prevention practitioner may consider the way they frame messages, especially the beginning (the message "lead"). If people respond more favorably to an empathetic appeal that suggests they will be able to help their friends feel less alone, then that information is valuable for those who want to make the most impact with their messages. While gain- or loss-framed messages may both motivate behavioral expectation, a higher level of behavioral expectation may help overcome barriers and concerns of performing the behavior. Although researchers may argue about the value of a small effect sizes, even the smallest advantage deserves consideration when messages are being designed to save lives.

Message Replication Effects on Gain and Loss Framing

In this research, participants each read two gained-framed and two loss-framed messages. This research notes that for the likelihood of social media message engagement and its subcategories (likelihood of liking, sharing, and commenting on a social media message), a significant difference between the message replications took place, with the Gain A and Loss B

messages having a more positive influence on social media engagement variables than the Gain B and Loss A messages. Yet, the variable of state empathy was influenced differently for loss messages, such that the Loss A message had a more positive influence on these variables than the Loss B message, and the Loss A message even had a more positive influence than the Gain B message (see Figure 9).

Overall, the messages still were more positively rated for gain messages, except in the one situation for empathy just mentioned. Without further message replications, one cannot determine exactly what the differences may be. However, one might consider whether the Loss A frame was better suited to inducing state empathy (friends will feel isolated if you don't reach out) rather than the Loss B's suggestion of a personal shortcoming (missing an opportunity if you don't reach out). This difference draws attention to the care that should be taken with the wording of the messages. This may suggest that going beyond the kernel state of gain-framed and loss-framed messages could entail an understanding of the intricacies of desirable and undesirable outcomes—that is, one might need to ask the question, who is the outcome *for*? Gain-framed messages that benefit others have shown to have effectiveness in promoting preventative health behaviors (O'Keefe & Jensen, 2007). While this research cannot confirm what aspects may have made one message more effective than the another in these cases, this area may deserve deeper research and consideration.

Limitations and Opportunities in Future Research for Gain and Loss Framing

This study had certain limitations in its examination of gain and loss framing. This study focused specifically on the exact wording of messages; yet even so, due to its design to best control for confounding variables and ensure robust survey response, it could not address other variables that are critical to message design. For example, questions that remain unaddressed in

regards to gain or loss framing for social media messages for suicide gatekeepers include (but are not limited to) the following:

- Is there any link of gain and loss framing to message length, and does it require a brief message to be effective on a social media platform?
- Due to the message replication findings, does the recipient of the desirable or undesirable outcome matter (i.e., is it more important to receive these outcomes for yourself or others)?
- Would a loss-framed message be more influential when it comes to promoting detection of suicidal behavior by suicide gatekeepers?

The Role of Empathy

In this study, empathy was examined in two capacities. As mentioned above, gain and loss framing focused on empathy appeals in the social media messages that were tested in the experiment. For the gain frame, messages focused on how intervening on behalf of a friend would help that friend feel less alone and that someone was there to help. In the first loss frame, the message focused on how not intervening might make a friend feel more alone. Only the second loss frame diverged, stating that a person misses an opportunity. To be more like the others, that message could have gone a step farther by talking about what the missed opportunity meant for a person's friend.

In addition to these empathy appeals, this study examined the role of state empathy. Overall, empathy is the process of thinking or feeling the thoughts or feelings of others (Egbert et al., 2014). While trait empathy indicates the inherent empathy that a person has, state empathy refers to the empathy that develops from exposure to another person's plight—whether it has happened or could happen (Shen, 2010a). This research asked whether the message reader could

understand how their friends might feel alone or suicidal, in hopes of better pinpointing what type of message can influence state empathy. While gain-framed messages did provide higher ratings on the message outcome variables including state empathy, the examination of the role of empathy did not end there.

The last research question hoped to better understand how state empathy plays a part in this process. Thus, state empathy was examined as a possible mediator between message frame and likelihood of social media message engagement (and its subcategories of liking, sharing, or commenting on a message) and behavioral expectation. The findings suggested that state empathy does mediate the relationship between message frame and those specific message outcome variables. Although the indirect effect of message frame on these variables with state empathy as the mediator is smaller than the direct effect of message frame on these variables, higher ratings of state empathy does affect the relationship, leading to higher ratings in all the social media message engagement variables, as well as higher ratings in behavioral expectation.

Theoretical Implications

Empathy is a complex concept, with cognitive, affective, and associative states (Shen, 2010b). When participants in the study were asked whether they could understand a friend's way of thinking, their rating of state empathy did show a relationship to the way they responded to the social media message and their future expectations of their behavior. Empathy has opportunities in health research when the action or behavior requested of a person will influence the health outcomes of others. While research into COVID-19 vaccination addressed this issue to some degree (Alagili & Bamashmous, 2021), more pointed examination of how other people's circumstances and outcomes motivate us would be useful, especially in regards to how a person's state empathy, which is not innate but can be influenced, may mediate the path between

how a message is designed and subsequent behaviors. In addition, while this study lumped the idea of state empathy into a single variable, both cognitive and affective state empathy deserve closer analysis and definition in terms of their roles in message reception.

Practical Implications

How much can a suicide prevention professional play on the emotions of others? The interview participants were mostly averse to using fear to motivate action of suicide gatekeepers. On the other hand, several participants and most of the online training materials discussed the importance of understanding your friends' thoughts and feelings. This study would highlight the importance of adding empathy appeals to a short message, urging people to try to think from their friend's perspective and base the need for action on helping someone they care about. Designing a message that emphasizes what suicide gatekeepers may gain *for* their friend if they intervene showed evidence of being a strong message design strategy.

Limitations and Opportunities in Future Research for State Empathy

This study examined empathy in a broader sense and linked it with gain- and loss-framed appeals. However, one of the messages neglected to fully connect the participant's action to actually helping a friend (Loss B), and state empathy was mostly focused on from a cognitive angle (understanding why friends think a certain way, as opposed to feeling their feelings). Therefore, some further areas of research include, but are not limited to, the following questions.

- How do cognitive and affective state empathy differ in terms of acting as mediating variables and/or influencing behaviors?
- How are gain- or loss-framed messages most effectively framed to influence a person's state empathy?

Adjustments to the Model and Indirect Effects

The second and third research questions focused on possible mediation of the variables of self-efficacy and response efficacy between the independent variables of message construct and the dependent variables of perceived message effectiveness, behavioral expectation, and likelihood of social media message engagement. None of the models tested for these two research questions indicated a significant indirect effect of message construct condition on these dependent variables with self-efficacy or response efficacy as the mediators.

However, significant indirect effects were found in this study. Perceived message effectiveness was a positive predictor of likelihood of social media message engagement (as well as its three subcategories of liking, sharing, and commenting on a message), as well as behavioral expectation. Perceived message effectiveness also mediated the relationship between self-efficacy and response efficacy and likelihood of social media message engagement (as well as its three subcategories of liking, sharing, and commenting on a message), as well as behavioral expectation. In fact, the indirect effect of self-efficacy and response efficacy on these variables through perceived message effectiveness was larger than the direct effect. In addition, the indirect effect was significant for the following, with perceived message effectiveness as the mediator (although the indirect effect here was smaller than the direct effect):

- Self-efficacy on the likelihood of social media message engagement (including likelihood of sharing or commenting on a social media message).
- Response efficacy on likelihood of social media message engagement (including likelihood of liking a social media message).

Yet, one must note that these significant indirect effects were not an outcome of the experiment and the randomization of participants to the various message conditions. However,

the positioning of self-efficacy and response efficacy in this iteration of the health belief model should be noted. While self-efficacy and response efficacy continue to be examined in health belief model studies to determine their placement (Green et al., 2020), this study may show early evidence of their opportunity to be used as constructs in the social media messages themselves. In this way, one might determine if messages that emphasize self-efficacy and response efficacy influence the perceived message effectiveness, social media message engagement, and behavioral expectation of suicide gatekeepers.

Also, although a large number of participants responded to this experimental survey, they were not randomly selected from a population as a whole, and therefore, assumptions made from the data can inform possible directions for the research, but do not stand as confirmed findings for a certain population. While self-efficacy and response efficacy could be examined as concepts that are on the same level of message construct, and perceived message effectiveness may in fact be an effective mediator, further research would need to be designed to test these ideas with valid scientific methods that would manipulate response efficacy and self-efficacy as independent variables.

Theoretical and Practical Implications

Theoretical Implications. With those limitations in mind, the model for social media message design for suicide gatekeepers could be formulated as shown in Figure 15. Self-efficacy has been described as a same-level concept as those of perceived threat and perceived benefits in the health belief model (Green et al., 2020). Perhaps self-efficacy and response efficacy should be moved out from under the influence of message construct; once again, using them as message constructs is an area of further research that deserves considerable exploration.. Indeed, message construct testing (significance, preventability, and beneficence) had limited results, with small

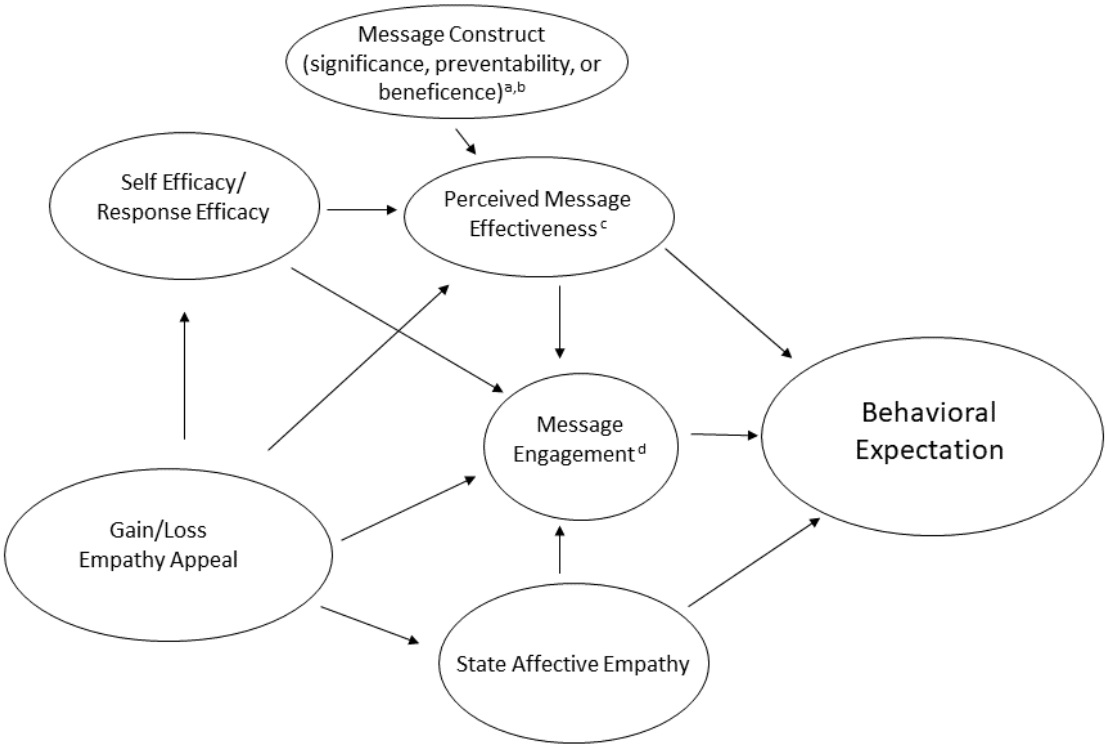
advantages for the message construct of significance of suicide threat, as described above. The disconnect between the emphasis placed on correcting suicide misconceptions found in the GT study versus the possibility of highlighting self-efficacy and response efficacy brough to light in the experiment is an area that should be noted and further communicated to suicide prevention specialists. Although the health belief model constructs are important messages based on the GT data, simple messages that highlight the suicide gatekeeper's ability to perform the action and the efficacy of that action may be more useful. Finally, state empathy may indeed be an effective mediator between message frame and message engagement and behavioral expectation, with message frame influencing every level of the model.

The model in Figure 15 does not include numerical effect values for the paths. This preliminary testing of the model suggested paths and confirmed the value of gain-framed messages, but in the future, the model should (and can) be broken in to smaller parts to best understand total, direct, and indirect effects.

Practical Implications. While we must be cautious in our interpretation of the role of perceived message effectiveness in this model, practitioners may be able to consider how self-efficacy and response efficacy of suicide gatekeepers is enhanced when they find a message to be powerful, informative, meaningful, worth remembering, and attention grabbing.

Figure 15

Adjustments to the Model for Social Media Message Design for Suicide Gatekeepers



[a] Message construct was only significant for the significance message construct condition positively influencing perceived message effectiveness compared with the preventability message condition. There were no significant differences between the significance and beneficence condition for perceived message effectiveness or the preventability and beneficence condition.

[b] Message construct condition did significantly influence likelihood of sharing a social media message, but not overall social media message engagement. The significance message construct condition more positively influenced likelihood of sharing a social media message than the preventability and beneficence message construct conditions.

[c] Perceived Message Effectiveness was not confirmed as a mediator from methods using a random sample or random assignment.

[d] Message Engagement was not confirmed at a mediator from methods using a random sample or random assignment.

Limitations and Opportunities in Future Research for the Model

Limitations and reservations for making assumptions for this model have been expressed. Indirect effects with perceived message effectiveness as mediator can only be mentioned, not confirmed, due to lack of random sampling or random assignment to conditions. However, perceived message effectiveness does deserve some attention for its possible positive mediating influence. In addition, message construct has a tenuous place in this model. Although interview participants and online material emphasized the need to debunk common misconceptions for suicide gatekeepers, more consideration is needed in the experimental design to test this. While the importance of the small effects of gain and loss framing has been debated (O'Keefe and Hoeken, 2021), this data did suggest that gain-framed messages would more positively influence all message outcomes.

Other Limitations and Opportunities for Future Research

The text above discusses limitations and opportunities for future research for each of the individual findings. However, as with any research, this process includes other limitations that should be noted, as well as opportunities for areas of research on the topic of designing social media messages for suicide gatekeepers.

Firstly, while GT methods have found their place in communication research, some weaknesses do exist. These possible weaknesses include using less robust literature reviews and less concrete methods at the beginning of the study. A GT study can be, in a word, *messy* at the beginning, with the destination not firmly in mind and the route only vaguely planned. However, as Charmaz (2014) asserts, this allows a researcher a certain degree of freedom. This research freedom gives researchers autonomy to address an issue that they must learn how to explore before they can explore it. Yet, when a researcher using the GT method draws conclusions,

especially when that researcher works alone, issues of validity and reliability may be introduced by others. Therefore, just as Glaser and Strauss (1967) suggest, this research was extensively detailed with memos that addressed the researcher's thinking and conceptualization processes; the conclusions of the researcher are richly outlined with direct links to the data, in order for readers of the research to critically assess the findings and understand the process of progressing from data collection to final conceptual model.

In the GT method, rich data was the reward, but the price may be scientific rigor. While many GT theorists may rest on the assertion by Glaser and Strauss (1967) that once the GT study is complete, the research is also complete with no requirement of further confirmation, this researcher proposes that using multiple methods gives one the best opportunity of digging deep into a research area while still maintaining scientific standards that are important in the research process; in fact, "quantitative and qualitative approaches to health communication research provide differing, but also complementary, levels of research control, precision, prediction, and depth of analysis, indicating the great value of combining quantitative and qualitative measures" (Ngenye & Kreps, 2020, p. 639). This study used both qualitative and quantitative methods, melding two research paradigms (both objective and subjective observation), and with each of these paradigms comes limitations. While the GT study may present challenges in generalization due to its purposive sample, the experiment is constrained in the depth of information it can provide, especially as new questions arise (Wimmer & Dominick, 2014).

The data sources themselves involve certain limitations. The GT study used a very small sample of interview participants and purposive collection of other data. While the total number of sources equaled 62 online, interview, and academic sources and more than 100 social media messages (and in-depth details were examined in each source), that sample is still not

representative of and cannot account for all the types of suicide prevention training materials that are available. An experiment requires randomization of participants into the study conditions, but although Qualtrics (www.qualtrics.com) performed this randomization with success, the need to select cases from that sample that met certain requirements could have affected the overall data that were collected and the true generalizability of the findings to the concepts tested. Because the survey did not have a random sample, results that showed mediation from certain concepts that were not part of the experimental design cannot be confirmed (e.g., perceived message effectiveness mediating the relationship between self-efficacy and behavioral expectation).

Secondly, the online experiment had to balance the need for valid and reliable measures with the need for adequate survey response. Qualtrics warns that surveys that take more than 10 minutes are less likely to be completed by the majority of survey takers. The researcher offered an incentive of a prize drawing, but even so, decisions were made that balanced what the research needed and the time demanded of the participants. Therefore, demographic questions were limited, and occupation, income, and other variables were not collected. In addition, each dependent variable was constrained to three statements to check scale reliability (with the exception of perceived message effectiveness, which had five); fortunately, scale reliability in this study was good or excellent for all the scales, and this may be based on the use of reliable scales from previous studies (Bae, 2021; Maurer & Pierce, 1998; Maruping et al., 2016; Shen, 2010b; Streklova & Damiani, 2016; Zhao et al., 2016). Yet, because the survey completion was not monitored by the researcher, one cannot ensure that the questions were read with depth or answered with sincerity, and this affects the ability to express with certainty that the statements measured what they intended to measure, no matter how strong the literature and conceptual foundation for each measure.

The messages themselves may have flaws in the way they were worded. Only two replications were used per framing condition in the within-subjects design, and using more messages may have helped the researcher better discern whether framing in general or specific wording would have the greatest effect. The lack of a concrete empathy appeal in one of the loss-framed messages has been previously mentioned as a limitation in drawing conclusions in this study. While the messages were inspired by real-world messages that were observed on social media platforms, because they were contrived for this study, they entail a risk of unnaturalness and idiosyncratic warping, because researchers may be predisposed to using certain words without always realizing this (Bradac, 1986).

Finally, one should note that the sample used in this study consisted of students, faculty, and staff at two universities in Oklahoma. For the most recent study available on religion and the states, 79% of Oklahoman adults identify as Christian (Pew Research Center, 2022). Christians may have longstanding misconceptions about suicide and its causes (Early & Akers, 1993; Peach, 2018), but national Christian organizations do encourage people to seek help for depression (Focus on the Family, 2022). However, religious misconceptions about suicide may further complicate the way those in Oklahoma address and understand suicide; therefore, the participants in this study may have been influenced by this. However, this study tests multivariate relationships among the concepts, and it should be noted that other studies examining multivariate relationships among concepts show consistent measurement of these relationships across different groups of participants who are randomized to the experiment conditions (Basil et al., 2002).

Overall, the model discussed in this chapter not only suggests relationships found between the concepts, but also areas for future research. Self-efficacy and response efficacy may

play a pivotal role in motivating suicide gatekeepers to intervene on behalf of a friend, but an experimental design would need to better isolate these independent variables and control for other factors. Images, sources, source credibility, social media platform, and message length are all variables that have been demonstrated to have an effect on the way people respond to social media messages (Edney et al., 2018; Shleyner, 2018), but none were used in this study in order to best control for possible confounding variables. Future studies should consider these variables and examine them, especially as their effect size could dwarf the smaller effect sizes found for message constructs and message frames. Future qualitative research (both interviews and textual analysis) should dig deeply into the issue with more of a prescribed plan, and this may help future research better analyze the critical intricacies of persuasive message design and message effectiveness for suicide gatekeepers.

Chapter 9: Conclusion

Suicide is a tragic occurrence that often affects the younger population (Hedegaard et al., 2021). Prevention and intervention of suicide has become an important area of research by both behavioral specialists and health communicators (Dumesnil & Verger, 2009; King et al., 2011). However, those with suicide ideation do not always seek help from professionals, opening the way for suicide gatekeepers to make life-saving decisions to intervene on behalf of suicidal peers (Terpstra et al. 2018).

With the rise of the digital age and the ubiquitous nature of social media, especially its use among the younger population, messages designed to influence attitudes and behavior have become a rich area of study for researchers; yet, discovery of effective messages proves complex, with a variety of variables influencing a person's decision-making process (Hilverda et al., 2017; Streklova & Damiani, 2016; Tan et al., 2017). Two aspects that can be measured, but still demand a great deal of research, include social media message gain or loss framing and the utilization of specific message constructs, such as those from the health belief model (Rosenstock et al., 1988).

A mixed methods approach gives a researcher the ability to address questions with more than one type of methodology. For example, a grounded theory (GT) approach allows the researcher to begin his or her research with an open mind and flexible data collection and analysis process, providing the researcher an opportunity to discover, refine, and build theory in areas where journal articles have sparse information (Charmaz, 2014). In addition, experiments conducted with control, that show how one variable precedes another, can also suggest how a message influences an audience (Leshner, 2014).

Therefore, the purpose of this study was to both build and confirm theory through a mixed methods' approach that included GT methods and experimental design. By using suicide intervention professionals' interviews and their organizations' social media messages, as well as a variety of online materials and academic research, message framing tactics and the use of effective constructs that reach suicide gatekeepers was conceptualized at a theoretical level. Following the first part of this study, an experiment tested message framing and the presence of informational constructs to better understand the wording most likely to influence self-efficacy, response efficacy, perceived message effectiveness, likelihood of social media message engagement, and behavioral expectation. This study not only succeeded in accomplishing what it set out to do, but it also contributed to advancing knowledge in a novel area. The study showed the strength of using a gain-framed message to reach suicide gatekeepers on social media, as well as the mediating role of state empathy in the process. In addition, the examination of the concepts of self-efficacy and response efficacy suggests that they deserve more examination in future studies in this area, as well as a place in further iterations of the health belief model. The value of a message construct that emphasizes the significance of suicide cannot be overlooked due to the results of the both the GT study and the experiment, and even if the construct of significance has a small impact, any influence in life-saving messaging deserves consideration. Therefore, the results of this study will be further disseminated to professionals in the field through white papers, contacts made in the field as a result of this study, and potential conference presentations and journal articles.

Social media message design is complex, with a number of variables affecting the way message recipients attend to and engage with a message (Edney et al., 2018; Guidry et al., 2020; Keib et al., 2017; Streklova & Damiani, 2016). Therefore, due to time, cost, and parsimony, this

research limited the variables that were tested to message frame (gain/loss) and certain constructs that reflect elements of the health belief model as conceptualized in the GT research, even though the use of images, message length, and the type of social media platform are all areas that deserve further exploration in effective social media message design for suicide gatekeepers. While results for the message construct (significance of suicide threat, preventability of suicide, and the beneficence of discussing suicide) had limited results supporting the significance message construct, the gain-framed messages influence all the message outcome variables more positively than loss-framed messages. The role of state empathy also suggested its importance for mediating message response.

Finally, although this research rigorously described methods from suicide prevention specialists and online sources that can aid message designers in regards to an audience of suicide gatekeepers, further exploration of the findings identified in both parts of this study may serve to enlighten health communication practitioners on how to effectively reach those who may be in the best position to aid suicidal peers. This research could not cover the entirety of motivational factors that encourage people to help others, but the results of this study contribute to both academic and practical knowledge on a critical issue.

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Appendix A: Data Sources for Grounded Theory Study

This appendix lists the sources used for the grounded theory research on message design concepts for suicide gatekeeping purposes. The only sources excluded were the individuals interviewed for this study, who were granted confidentiality for their participation in order to give them the opportunity to speak freely about their experience without having to worry about their own opinions being attached to or reviewed by their organization.

Social Media Platforms

- American Foundation for Suicide Prevention Facebook page (https://www.facebook.com/AFSPnational)
- American Foundation for Suicide Prevention Twitter feed (https://twitter.com/afspnational)
- Crisis Text Line Facebook page (https://www.facebook.com/crisistextline)
- Fail Safe for Life Instagram page (https://www.instagram.com/failsafeforlife/)
- National Action Alliance for Suicide Prevention Facebook page (https://www.facebook.com/ActionAlliance)
- National Action Alliance for Suicide Prevention Twitter page (https://twitter.com/Action_Alliance)
- National Suicide Prevention Lifeline Facebook page (https://www.facebook.com/800273talk)
- National Suicide Prevention Lifeline (The Lifeline) (https://twitter.com/800273TALK)
- Oklahoma Suicide Prevention Coalition (https://www.facebook.com/okspc)
- Seize the Awkward Instagram page (https://www.instagram.com/seizetheawkward/)

- Suicide Prevention Resource Center Facebook page (https://www.facebook.com/SuicidePreventionResourceCenter)
- Suicide Awareness Voices of Education Facebook page (https://www.facebook.com/www.save.org/?ref=ts)
- Suicide Prevention Resource Center Twitter feed (https://twitter.com/sprctweets)
- The Trevor Project Facebook page (https://www.facebook.com/TheTrevorProject)
- The Trevor Project Twitter feed (https://twitter.com/TrevorProject)
- Thrive OKC Facebook page (https://www.facebook.com/thriveokc/)
- Thrive OKC Instagram (https://www.instagram.com/thriveokc/)
- Thrive OKC Twitter feed (https://twitter.com/thriveokc)
- UCO Health Promotion Facebook page (https://www.facebook.com/UCOhealthpromo)

Digital Videos (YouTube)

988 Suicide & Crisis Lifeline. (2021, September, 10). *BeThe1 to know the steps.* [Video]. YouTube. https://www.youtube.com/watch?v=J0KCRW3DzXA Ad Council. (2018, January 17). *Seize the awkward: Friendship & mental health*. [Video]. YouTube. https://www.youtube.com/watch?v=r47l4eUU1bc

Ad Council. (2018, January 17). *The awkward silence: Friendship & mental health*. [Video]. YouTube. https://www.youtube.com/watch?v=8gKtVoSgNNM

AFSPNational AFSP. (2015, September 29). *Talk saves lives.* [Video]. YouTube. https://www.youtube.com/watch?v=WFVVwLERoX4

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Speak the Unspeakable: Attempt Survivors Speak Out. (2021, July 10). *Learn QPR; Save a life – Suicide prevention skills gatekeeper training*. [Video]. YouTube. https://www.youtube.com/watch?v=YhnCPjr-KAI

TEDxYouth@Lancaster. (2017, August 15). *Shattering the silence: Youth suicide prevention—Sadie Penn*. [Video]. YouTube. https://youtu.be/sRo5Db_7yVI

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Training and Information

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Trevor Project. (n.d.) Warning signs of suicide. https://www.thetrevorproject.org/resources/article/warning-signs-of-suicide/

Trevor Project. (2021, July 16). Guide: Preventing suicide. https://www.thetrevorproject.org/resources/guide/preventing-suicide/

Internet Suicide Survivor Stories from Live Through This (livethroughthis.org)

- Jennifer Haussler Garing
- Abel Ibarra
- Cecelia Markow
- Elvis Mella
- Rhett Miller
- Samantha Nadler
- Rylan Romans
- Shelby Rowe
- Kim Schwartz

- Rene Severin
- Dior Vargas
- Rayna Villagenor
- Rose White

Coursera Material

Kissinger, M. (2018, June 14). Why we need to write more about suicide. *Columbia Journalism Review.* https://www.cjr.org/analysis/cdc-report-suicide.php

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Appendix B: List of Tables and Figures

List of Tables

List of Figures

Appendix C: Sample Interview Guide

Each interview guide was formatted to the specific individual being interviewed. However, this is the basic interview guide example. The researcher did follow up if an answer was confusing or gave indication of providing more background for the study.

Interview Guide Example

Thanks so much for helping me with my research.

I'm focusing on how we can reach and motivate suicide gatekeepers—or those who are in a position to intervene in some way when they become aware of another person's plans to take their life. My research focuses on media psychology and digital media effectiveness, specifically in health and wellness communication.

- So, to begin, tell me a little bit about your background and your organization?

- If someone asked you who is most influential in a young adult's life when it comes to suicide prevention, whom would you identify?

- What type of information do you think peers and family members need to know about suicide in order to intervene? What types of messages are helpful?

- What type of appeals do you think are appropriate? Such as, involving emotions such as fear of losing a friend or empathy with what a friend is going through?

- What type of misconceptions or concerns do you think people have about talking about suicide with a friend or family member who is having thoughts about suicide?

- What type of media – traditional or digital, do you think is most effective for reaching young adults who might be able to intervene on behalf of a friend?

- Any specific social media channels that stand out more than others for reaching young people?

- Can you talk about the consequences of not intervening?

- Do you have any personal experience with reaching out to those who are considering taking their life?

- Any other thoughts you want to address? (Or other people to reach out to?)

Appendix D: Memos Composed During Open, Axial, and Theoretical Coding

Memo (5-16-22)

Overall, this document (Action Alliance Media Messaging) is meant for strategic communicators focusing on suicide prevention. It emphasizes the importance of using strategic planning in order to ensure that messages aren't lost—that they are more focused and effective. Identifies necessity of **key message**s. But what do key messages have in them? Seems that some emphasis on research would be useful. When I look at National Suicide Prevention Lifeline material, the need for gatekeeper behavior becomes more important. Message aimed at this target audience are obviously seeking an action on the part of gatekeepers—but what is most important? Catching the signs of suicide? Starting a conversation? Both actions seem to be highlighted.

Memo (5-18-22)

Another recourse (Action Alliance: COVID-19...) also emphasizes **necessity of action**, which includes emphasis on belonging and social connections. The resource highlights that talking about suicide does not encourage suicide (**combats myths).** Highlights **availability of resources.** Gatekeepers may need to take action in two ways—talking to those with suicide ideation and making sure they know where to turn next.

Memo (5-19-22)

Patterns continue to emerge. When speaking to those who might become aware of suicide, discussing not only the means of starting a conversation but also next steps appear to be the

primary messages and focus of online information beyond looking for signs (awareness). My notes from first interviews would support that connection to resources is important—but you must first be able to recognize signs of suicide.

Memo (5-20-22)

Interview today: People with suicidal thoughts need **permission and validation** for their feelings in order not to hide them and feel worse. **We must stop the myth that discussing suicide causes it.** We can't connect them to resources if we don't talk to them—but we have to help suicide gatekeepers understand that this is okay.

Memo (5-23-22)

There is certainly room to examine gain/loss, but the specifics are still materializing and being refined. You must be careful with loss because no one should be guilty about someone taking their life (see Trevor Project CARE video and interview notes). On the other hand, there is a necessity and expectation that someone will intervene because they care and can help their friend (gain). Posts continue to vary between awareness of friends' needs/warning signs and knowledge of what to do next (start conversation/provide resources). Sense of interdependence also has some evidence—but it is not as community focused as much as relationship/friendship (between two people) focused**.** (Interdependence would highlight that we work as a community to stop suicide and is also prevalent).

Memo (5-25-22)

At this point, especially with the QPR (Question, Persuade, Refer) theory article, the core concept of knowledge holds strong with the three sub concepts of **Detect, Engage, and Connect.** I am still struggling to figure out if addressing misconceptions (insignificance and ideation) are more critical or fear and empathy (loss/gain) would be more appropriate to test. Both the seriousness (significance) of suicide signs and the need for others to reach out were strong in the stories I completed today.

Memo (5-26-22)

Great interview today. Interviewee brought of term **relatability** as an antithesis to fear-mongering in messages meant to promote suicide prevention. She also mentioned that a common **misconception** is that suicide is not preventable (which had been in the high school video). Trying to figure out if **myth busting** or **affective appeals** (fear/empathy) will be a main category for the second part of the research is presenting a bigger challenge.

Knowledge and its relationship to a need for self-efficacy continue to be strong in the categories of **detection, engagement, and connection.** Messages don't necessarily highlight self-efficacy, however.

Memo (6-10-22)

Back from vacation....

Spent time working through two videos and three stories today. The themes continue to sharpen; also, people either avoid suicide or talk about how it could be avoided based on family members' support and interest.

Today felt like a breakthrough with the concept map, which has been circulating in my mind during two weeks away from the data. Looking through my social media notes and interview notes, the information suicide gatekeepers receive focus on knowledge about detecting, engaging, and connecting. These can be inhibited by misconceptions—the three most prevalent being the idea of suicide ideation not being serious (**insignificance**), planting ideas of suicide by talking about it (**maleficence**), and being unable to prevent it (**inevitability**). However, using phrasing that focuses on seriousness of suicide ideation (**significance**), the benefit of talking about it (**beneficence**), and the ability to stop it (**preventability**) may be useful methods of cognitive persuasion. In addition, affective appeals focused on the **guilt/fear** (loss) of not intervening versus the **empowerment** (?) (gain) of intervening may be where the between-subjects testing will be conducted.

Memo (6-13-22)

Looked at literature from my health communication class and a chart of the health belief model. I'm interested in how the constructs from that model fit the need to combat the misconceptions I listed Friday. Health belief model examines perceived barriers and benefits, as well as threat and self-efficacy. I think this may be my connection back to theory that will help me in formulating a testable model.

Memo (6-15-22)

Where do self-efficacy and response efficacy fit? The data show that I need behavioral expectation for my actions to take place (detect, engage, connect), but where do these constructs/concepts fit in the model? Are the ideas of significance, beneficence, and preventability top level constructs? I am not gathering much data on these in the interviews. Maybe this is where I need to focus my experiment.

Memo (6-20-22)

The model has come into formation based on a few more in-depth examinations of the survivor stories and interview notes. They appear to confirm what has been emerging. The health-belief constructs may influence a person's self-efficacy and response efficacy, which in turn may influence social media message engagement and behavioral expectation.

Memo (6-25-22)

Comparative analysis continues to support the framework that addressing misconceptions should influence self-efficacy and response efficacy in gatekeepers. This is an area for the experiment to focus. Empathy has also been focal point of interviews and documents—this is where the gain and loss framing should focus—but without the element of fear.

Appendix E: Grounded Theory Tables

Appendix Table 1

Early Examples of Social Media Message Constructs

Concept	Message	Source
Identification	"It's not that I want to die... I just want to stop existing for a while." – Link to article "15 Things People Say That Are Code for 'I'm Passively Suicidal'"	American Foundation for Suicide Prevention Facebook page
Identification	This #MentalHealthMonth, learn the warning signs for suicide. Everyone can play a role in suicide prevention. Some warning signs may help you determine if a loved one is at risk for suicide. Know the warning signs: http://bit.ly/2xpBOgs Seek help by calling @800273TALK"	National Suicide Prevention Lifeline Facebook page
Identification	For LGBTQ youth – those who are trans and nonbinary in particular – attacks on support systems and resources can be dire. In the past year, more than half of transgender and nonbinary youths considered attempting suicide	Trevor Project Twitter feed
Listening	Take some time today to check in on your loved ones and tag them below to let them know you're thinking about them!	National Suicide Prevention Lifeline Facebook page
Listening	Did you know that just a simple question could stop someone from attempting suicide? FailSafe for Life's goal is not easy but it's simple: we help prevent suicide attempts and deaths in our community by equipping people to recognize and react – even with just a few kind words - when someone they encounter is at risk.	FailSafe for Life Instagram page

	Your donation of $30 can provide training for a community member to recognize the signs of suicide and help save a life. http://paypal.me/FailSafeforLife	
Listening	Have you ever wondered how to help someone who is grieving. SAVE offers resources for that. https://save.org/what-we-do/grief-support/ #grief #SAVE #suicideawareness #sucideprevention #comfort #support #griefsupport	Suicide Awareness Voices of Education Facebook page
Resources	3.5 million calls are made to the National Suicide Prevention Lifeline '1-800-273-TALK (8255)' every year. Learn about our country's crisis response system, crisis call centers, mobile crisis outreach, crisis stabilization, and more.	American Foundation for Suicide Prevention Facebook page
Resources	No matter what you're experiencing, there are ways to support yourself & those around you. If you or someone you know needs help, confidential support and treatment options are available. Help yourself & share to help others: http://samhsa.gov/find-help #WorldHealthDay (image showing hotlines)	SAMHSA on Twitter (retweeted by National Suicide Prevention Lifeline
Resources	It's #MentalHealthMonth. If you or someone you know is struggling with thoughts of #suicide, reach out. Call 1-800-273-TALK (8255) to be connected with a trained, caring counselor or visit http://bethe1to.com to learn how to help someone else who may be struggling. (picture of variety of people)	National Suicide Prevention Lifeline Twitter feed

Appendix Table 2

Examples of Social Media Messages and Other Material Supporting Need for Self Efficacy and Response Efficacy in Promoting Behavior (Detection, Engagement, Connection)

Detection
Social Media
Have a friend that is acting differently these days? It may be a sign that they are going through a tough time. Stay tuned for some examples. #seizetheawkard - *Instagram post from W&M Health & Wellness* #BeThe1To share these warning signs with everyone you know. Knowledge and awareness can help save lives. (link to article "We Can All Prevent Suicide") - *Twitter post from the National Suicide Prevention Lifeline* I never planned out my future because I never expected I'd ever get here. (Link to article "17 signs you grew up with suicidal thoughts") - *Facebook post from the American Foundation for Suicide Prevention*
Interview Participants
"Training is available that helps kids look for signs." "It's important that more people are reporting on it. The media shouldn't shy away from it." "We need to pay attention to what people need…Robin Williams was outwardly happy, but his actions couldn't have come out of nowhere." "You can look for the signs. When someone is isolating themselves, that's not a good thing. Other signs include sudden euphoria and being a subject of bullying."

"If we can identify it at the early stages, we can step in."

Online Material

Knowing these major warning signs can help you connect someone you care about to support if they need it – even if that person is yourself. (lists warning signs)

- *"Talking About Suicide" (Trevor Project Website)*

Some warning signs may help you determine if a loved one is at risk for suicide, especially if the behavior is new, has increased, or seems related to a painful event, loss, or change.

- "*Help Someone Else" (National Suicide Prevention Lifeline)*

I'll be honest; I wanted my cries to be heard. I wanted somebody to hear me, to know that I was going through some pain.

- *Rayna Villagenor, suicide survivor on livethroughthis.org*

Action: Engage

Social Media

As we take time today to celebrate #EarthDay make sure you also take time to check in on your loved ones. Your support can play a major role in helping with their mental health or substance use.

Share with your friends to let them know you're thinking about them! (image of "You Mean the World to Me!"

- *Twitter post from National Suicide Prevention Lifeline*

Tag someone below who might need to hear this today!
Artwork by @ allyblaireco (on Instagram) : text-based image that is positive and encouraging

- *Twitter post from American Foundation for Suicide Prevention*

"Sometimes, when I say 'I'm okay.' I want someone to look me in the eyes, hug me tight and say, 'I know you're not."
Unknown

- *Facebook post from the Suicide Awareness Voices of Education*

Interview Participants

"Talking to someone about their thoughts of suicide may take the pressure off of acting"

"Planting the idea? We need to debunk that. Parents worry about talking to younger children, but people need to open up the space to discuss self harm and suicide."

"Even if someone doesn't know what to say, they can hardly make it worse. The only way to mess up talking to someone about suicide is to ignore it."

"You don't have to wait to be comfortable. Be transparent about being awkward."

Online Material

It was really helpful to have somebody else right there during the worst of it who I could be very frank with.

- *Samantha Nadler, suicide survivor, on livethroughthis.org*

Have an honest conversation" (includes talking in private, listening to their story, telling them you care, asking directly if they are considering suicide, and encouraging them to seek treatment; avoid debating the value of life, minimizing problems, or giving advice).

- *"What to do when someone is at risk" (American Foundation for Suicide Prevention)*

Fact 1: Talking about suicide or asking someone if they feel suicidal will not put the idea in their head or cause a person to kill themselves.

- *Preventing Youth Suicide through Gatekeeper Training: A Resource Book for Gatekeepers (Coleman & O'Halloran, 2004).*

Action: Connect

Social Media

"In light of recent events, it's normal to feel a range of emotions. We encourage you to check in with friends, family and loved ones. If you or someone you know is struggling, help is available. Call the National Suicide Prevention Lifeline '1-800-273-TALK (8255)' or text TALK to 741741 at the Crisis Text Line."

- *Facebook post from American Foundation for Suicide Prevention*

It's #MentalHealthMonth. If you or someone you know is struggling with thoughts of #suicide, reach out. Call 1-800-273-TALK (8255) to be connected with a trained, caring counselor or visit http://bethe1to.com to learn how to help someone else who may be struggling. (picture of a variety of people)

- *Twitter post from the National Suicide Prevention Lifeline*

June is #PrideMonth. Check out and share this page with mental health resources to support yourself and/or loved ones who are a part of the LGBTQ+ community: https://bit.ly/3mbjC4B

- *Facebook post from the National Suicide Prevention Lifeline*

Interview Participants

"Friends and family members may not know exactly what to do, but they can find people who do."

"Resources are out there for those who want to help."

"People are struggling, but they are not alone."

"Campaigns like 'Be the One' and 'Seize the Awkward' can provide resources."

"Young people have become more aware of the value of a safety and support network."

"Mental health personnel can understand the nuances of self-harm versus suicide."

Online Material

Connect a person to resources [lists resources]. You are not alone when helping others.

- *CARE: How to Help Someone in Crisis (Trevor Project YouTube Video)*

If these warning signs apply to you or someone you know, get help as soon as possible, particularly if the behavior is new or has increased recently.

National Suicide Prevention Lifeline
1-800-273-TALK

Crisis Text Line
Text "HELLO" to 741741

www.nimh.nih.gov/suicideprevention

- *"Warning Signs of Suicide"* (National Institutes of Health)

Appendix F: Qualtrics Survey

Start of Block: Consent Block

Intro **Consent to Participate in Research**

I am Megan Cox from the OU Gaylord College of Journalism and Mass Communication and the University of Central Oklahoma Department of Mass Communication. I would like to invite you to participate in my research on social media suicide prevention. Possible participants should be between the ages of 18 to 34 years and at least 18 years of age.

Please read this document and contact me to ask any questions you may have BEFORE agreeing to participate in my research.

What is the purpose of this research? This research aims to better understand how suicide prevention messages influence peers to intervene on behalf of a friend.

How many participants will be in this research? About 2000 people.

What will I be asked to do? If you agree to be in this research, you will complete a 10 to 15-minute online survey.

What are the risks and benefits if I participate? This research involves no more than minimal risk. However, the survey asks questions that may trigger strong emotional reactions. If these questions make you feel uncomfortable, you do not have to provide an answer, or you can discontinue participation in the research. There are also resources for you that are available anytime: call the National Suicide Prevention Lifeline at 988 or visit 988lifeline.org.

Will I be compensated for participating? At the end of the survey, participants can enter to win 1 of 5 Amazon gift cards. Each gift card is worth $50.

Who will see my information? Information in research reports will not identify you. Research records will be stored securely, and only approved researchers and the OU Institutional Review Board will have access to the records.

Do I have to participate? No. If you do not participate, you will not be penalized or lose benefits or services unrelated to the research. If you decide to participate, you don't have to answer any questions and can stop participating at any time.

Will my identity be anonymous or confidential? Your name will not be retained or linked with your responses.

What will happen to my data in the future? Your data will be stored securely and will not be

linked with your identity. It may be used in future studies.

Who do I contact with questions, concerns, or complaints? If you have questions, concerns, or complaints about the research or have experienced a research-related injury, contact me at mcox18@uco.edu or 405-974-5914. You may also contact the faculty advisor, Dr. Glenn Leshner, at leshnerg@ou.edu.You can reach the University of Oklahoma – Norman Campus Institutional Review Board (OU-NC IRB) at 405-325-8110 or irb@ou.edu if you have questions about your rights as a research participant, concerns, or complaints about the research and wish to talk to someone other than the researcher(s) or if you cannot reach the researcher(s).

Consent I hereby voluntarily agree to participate in the above listed research project and further understand the above listed explanations and descriptions of the research project. I also understand that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty. **I acknowledge that I am between the ages of 18 years and 34 years**. I have read and fully understand this Informed Consent Form and agree to participate in this study.

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If I hereby voluntarily agree to participate in the above listed research project and further unders... = No

End of Block: Consent Block

Start of Block: Demographics

Age How old are you?

_____

Gender What gender do you identify with?

- ○ Male (0)
- ○ Female (1)
- ○ Nonbinary (2)

Race What is your race and/or ethnicity?

_____

Campus On which campus do you work or take classes?

- ○ UCO (1)
- ○ OU (2)
- ○ Neither (3)

End of Block: Demographics

Start of Block: Instructions

Q82 You will view **four** social media messages and answer a brief set of questions after each. Please read carefully. Once you finish these four sets of questions, you will be redirected to enter the drawing for 1 of 5 Amazon gift cards worth $50 each. This survey should take no more than 10-15 minutes.

End of Block: Instructions

(These questions were answered after each message, for a total of four times; message examples are shown in

Please read the following message.

I would be likely to:

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
Like this post. ()							
Share this post. ()							
Comment on this post. ()							

This message is...

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
Powerful ()							
Informative ()							
Meaningful ()							
Worth remembering ()							
Attention grabbing ()							

After reading this message, I am confident that I can reach out to a friend or peer I believe is having suicidal thoughts.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After reading this message, I know if I talk to my friend, I can help prevent suicide.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After reading this message, I can see the point of view of a friend having suicidal thoughts.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

After I view this message, I expect that I will intervene on behalf of a friend or peer I believe is having suicidal thoughts.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

After reading this message, I believe I have the ability to reach out to a friend or peer I believe is having suicidal thoughts.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

After reading this message, I know if I help my friend find resources, I can help prevent suicide.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

After reading this message, I recognize situations where my friends may feel they have nothing to live for.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After I see this message, I know I will definitely intervene on behalf of a friend or peer I believe is having suicidal thoughts.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After reading this message, I know I can be effective when I reach out to a friend or peer I believe is having suicidal thoughts.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After reading this message, I know if I reach out to my friend who is showing signs of suicide, I can help them.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

After reading this message, I can understand what my friends are going through when they are thinking about taking their life.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

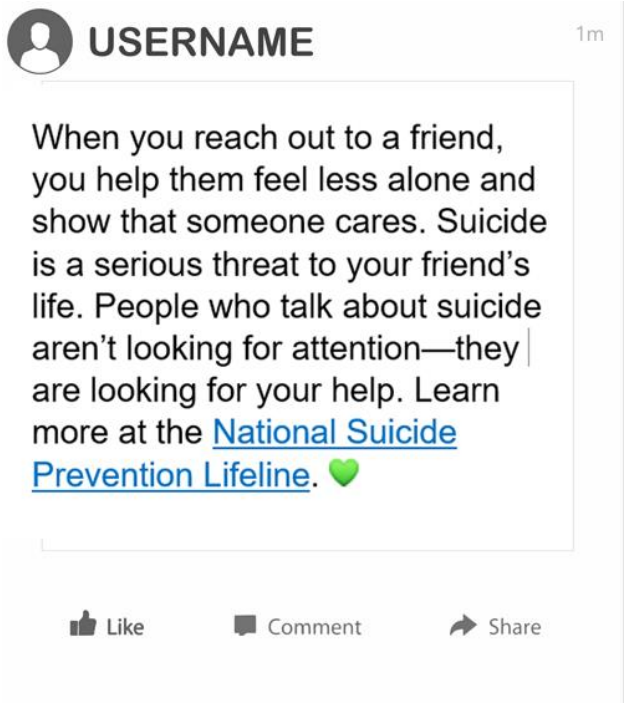
After I read this message, I believe I am likely to intervene on behalf of a friend or peer I believe is having suicidal thoughts.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

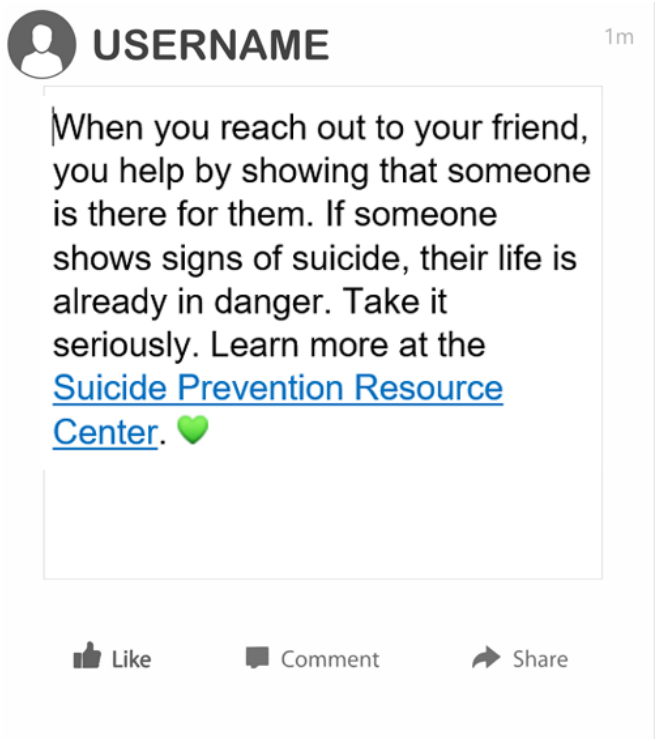
End of Block

Appendix G: Messages Used in Qualtrics Survey

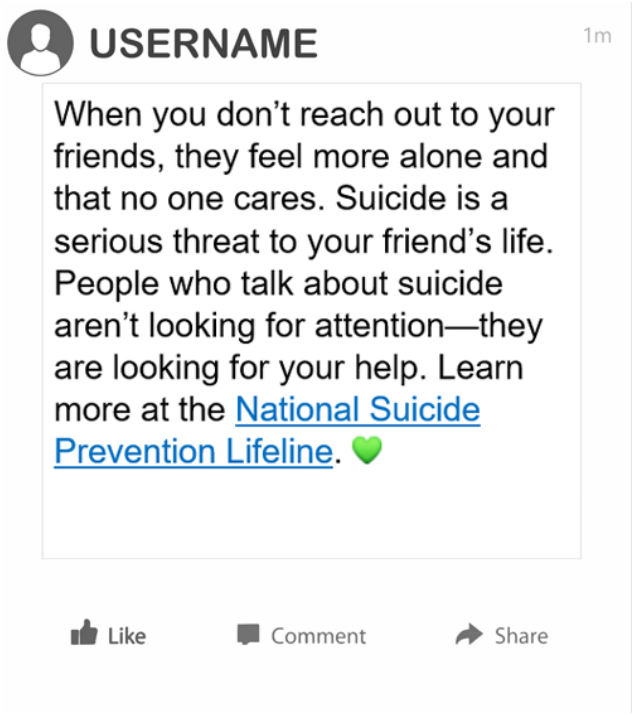
Significance Gain A



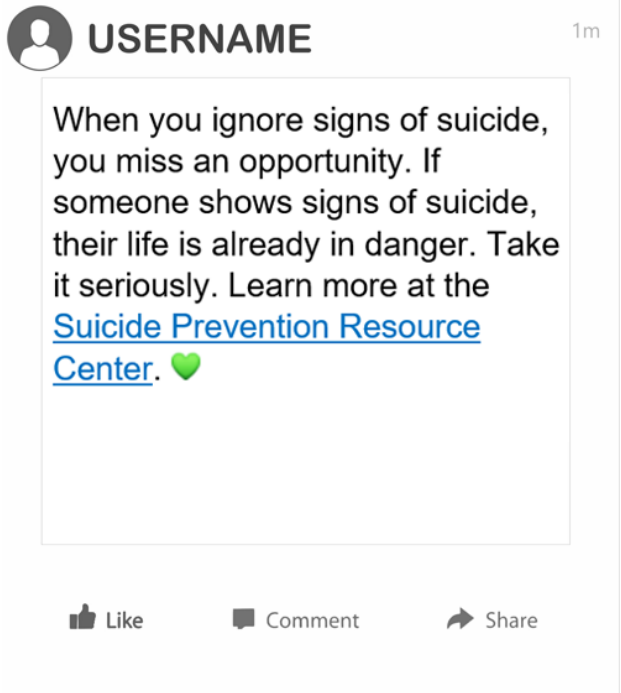
Significance Gain B



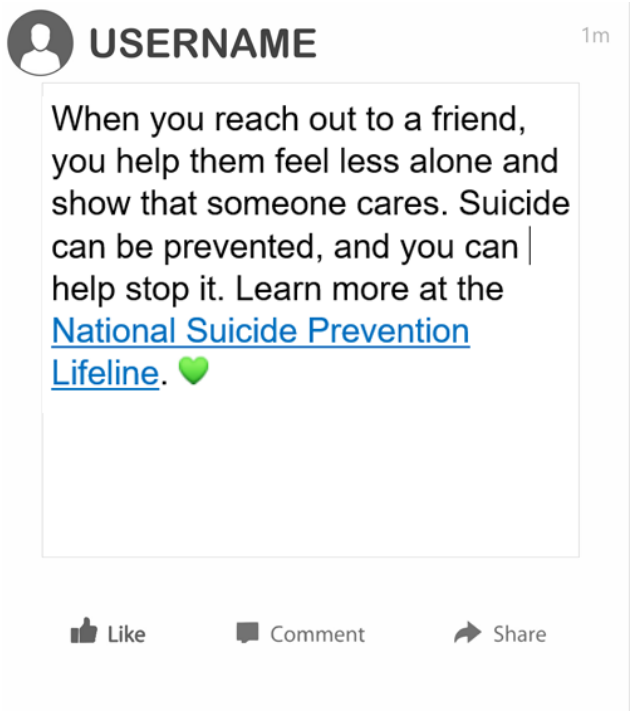
Significance Loss A



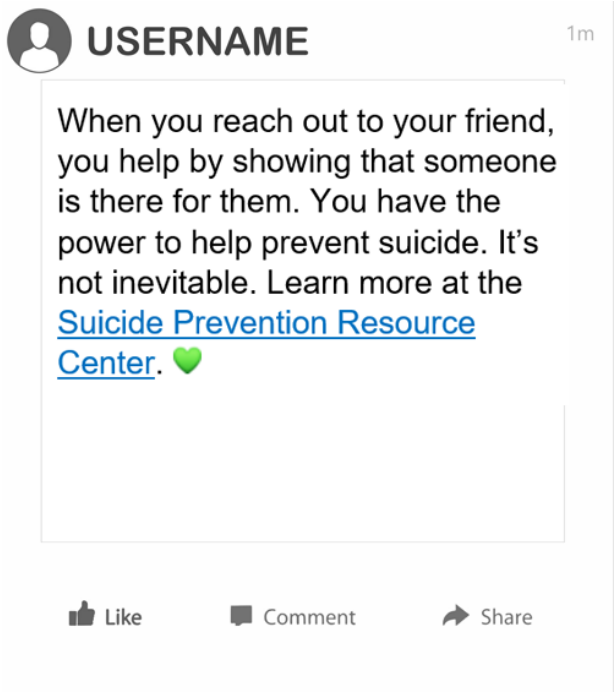
Significance Loss B



Preventability Gain A



Preventability Gain B



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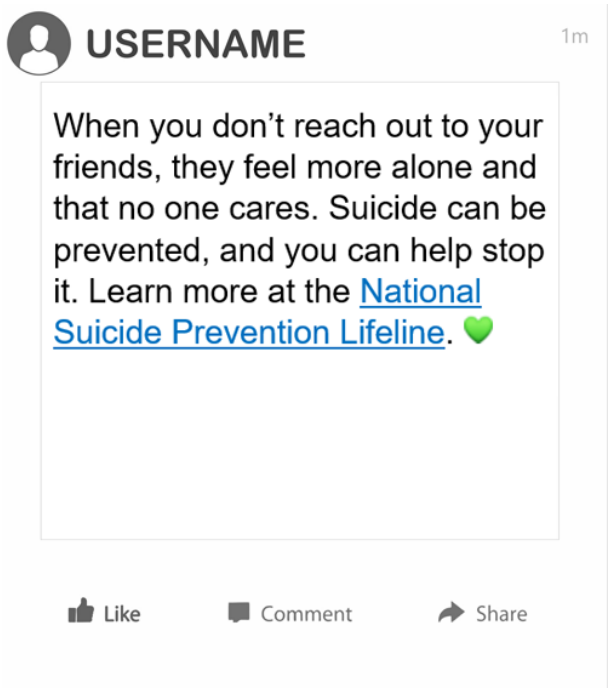

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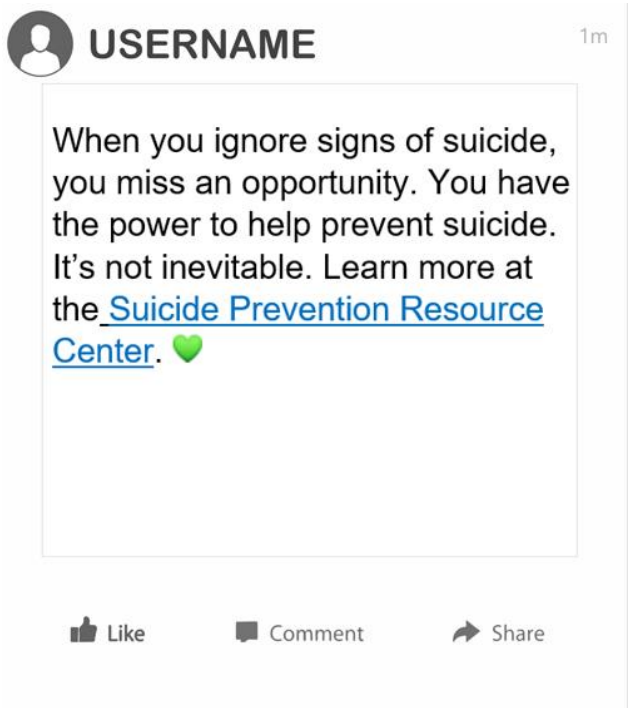

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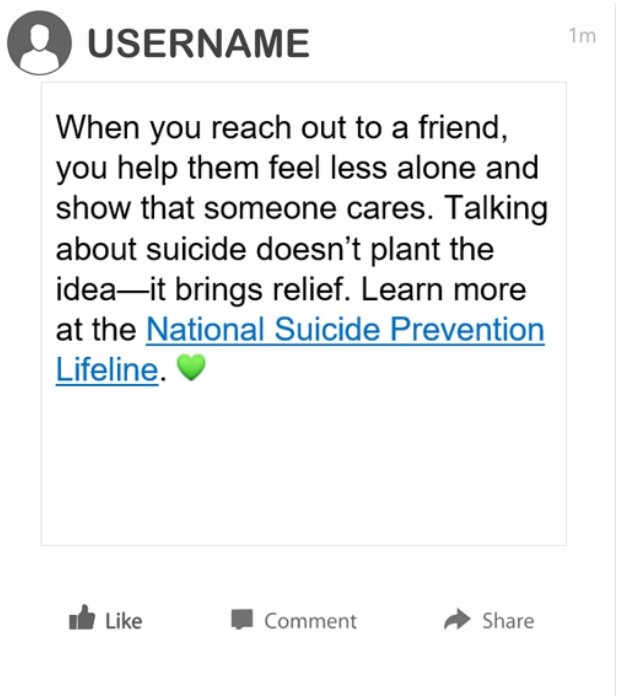

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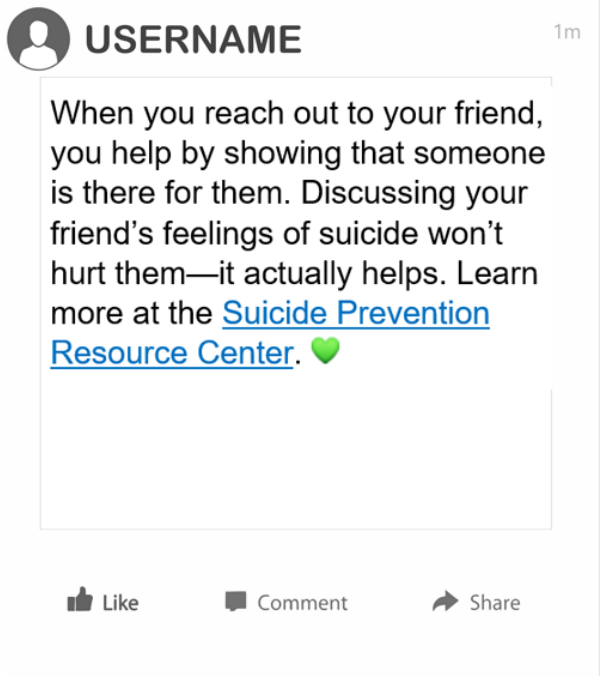

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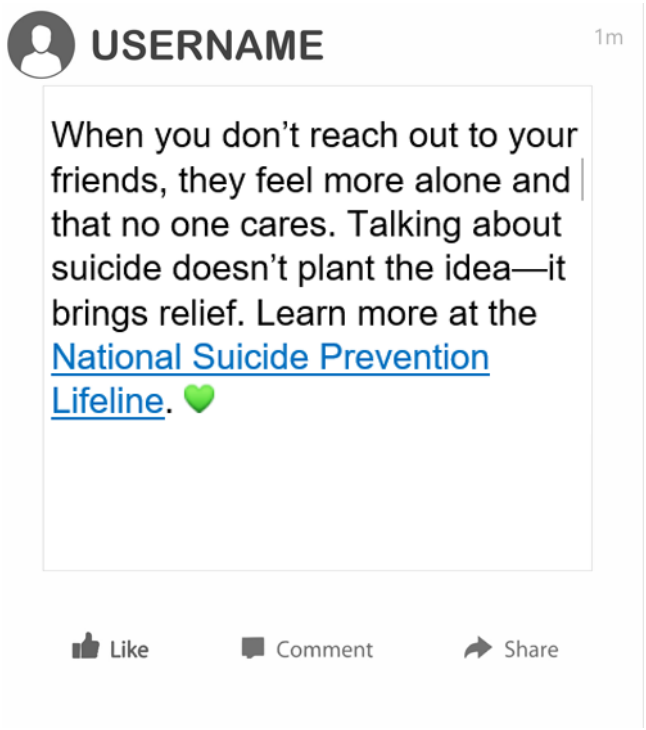

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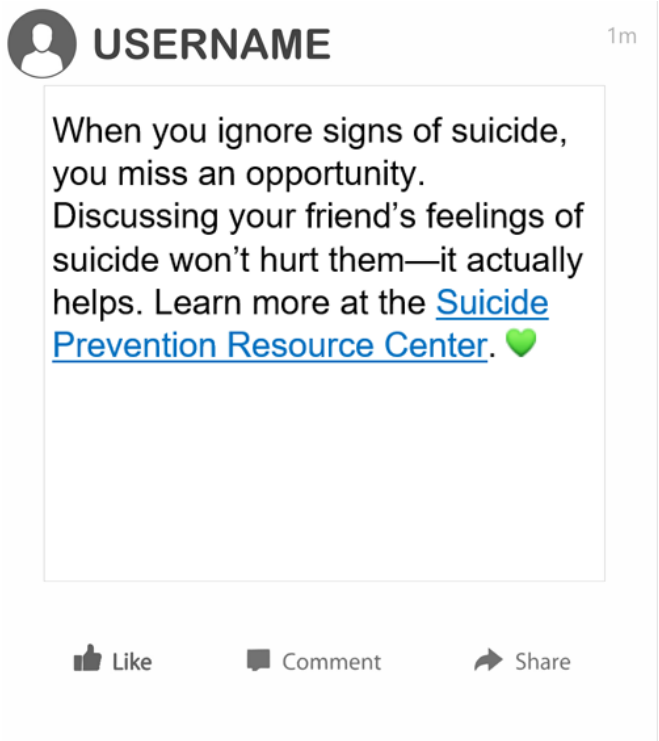

Appendix H: Internal Review Board Approval Letter

The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects

Approval of Study Modification – Expedited Review – AP0

Date: August 15, 2022 **IRB#:** 14923

Principal Investigator: Megan M Cox **Reference No: 738708**

Study Title: Designing Social Media Messages to Promote Action by Suicide Gatekeepers

Approval Date: 8/15/2022

Modification Description: Language in the consent form has been condensed for better readability online and question format has been changed on questions that read, "When viewing this message" to "After viewing this message" for consistency.

The review and approval of this submission is based on the determination that the study, as amended, will continue to be conducted in a manner consistent with the requirements of 45 CFR 46.

To view the approved documents for this submission, open this study from the My Studies option, go to Submission History, go to Completed Submissions tab and then click the Details icon.

If the consent form(s) were revised as a part of this modification, discontinue use of all previous versions of the consent form.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or irb@ou.edu. The HRPP Administrator assigned for this submission: Kat L Braswell.

Cordially,

Aimee Franklin, Ph.D.
Chair, Institutional Review Board