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Peer Intervention with Suicidal Disclosures on Social Media: Does the Bystander Effect Play a Role?

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Peer Intervention with Suicidal Disclosures on Social Media: Does the Bystander Effect
Play a Role?

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Dedication

This dissertation is dedicated to every young person with whom I have had the privilege of working clinically. Your courage and resilience in the face of adversity is a constant inspiration and I am grateful to have met every single one of you. You are not only the motivating factor behind this dissertation but also a constant reminder of the value in the work that I strive to do.

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Abstract

Suicide is an increasing public health concern in adolescents and young adults, and many individuals discuss mental health concerns with friends in lieu of professional avenues. Thus, peers can serve as valuable gatekeepers for friends experiencing suicidality. The prevalence of social networking websites means that individuals are likely to encounter suicidal disclosures on the internet, but little research has investigated if young adults possess the skills and motivation to intervene in these contexts. Additionally, there have been virtually no investigations into how the presence of other online users impacts intervention behavior—in short, if there exists a bystander effect. This study investigated the bystander effect on intervention behaviors for disclosures of suicidality via social networking websites, as well as the impact of the severity of the statement on the bystander effect and intervention behavior. Participants were asked to view a simulated Facebook page which included a mock post that contained either an explicit or an ambiguous suicidal disclosure that was witnessed by either no bystanders, nonsupportive bystanders, or supportive bystanders. Results indicated that participants were significantly more likely to provide higher-quality responses to an explicitly suicidal statement than to an ambiguously suicidal statement. Participants who observed the suicidal post in the absence of bystanders were significantly more likely to respond and provide higher-quality responses to the post than if bystanders were present. Higher levels of perceived behavioral control in intervening with a suicidal individual were also

associated with higher-quality responses. These findings have important implications for research, suicide prevention program development, and clinical practice.

Keywords: suicide, suicide intervention, social media, young adults, the bystander effect, bystander intervention behavior

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Chapter 1

Introduction

Suicide is a national public health concern, serving as the second leading cause of death for adolescents and young adults (ages 15 to 24; Centers for Disease Control and Prevention [CDC], 2016a). In 2016, over three million (a little over eight percent) of young adults ages 18-25 reported having suicidal thoughts in the past year, with just under three percent reporting making a suicide plan and just under two percent reporting attempting suicide (Substance Abuse and Mental Health Services Administration, 2017). Despite this, many individuals experiencing suicidality do not seek or receive mental health care. One review found that, on average, less than half of young people experiencing suicidality sought out any professional mental health care (Michelmore & Hindley, 2012). There are a number of barriers to receiving mental health care, including fears of hospitalization, stigma related to suicidality and seeking mental health help, negative beliefs about the effectiveness of treatment, a denial of need for professional help, or a preference to manage symptoms independently (for comprehensive review, see Horn et al., 2015). Additionally, the hopelessness and lack of coping strategies that are present in individuals experiencing suicidality may also result in these individuals turning away from seeking mental health help, a phenomenon referred to as help negation (Clark & Fawcett, 1992). As individuals experiencing suicidality may not self-refer for mental health services due to the aforementioned barriers, suicide prevention efforts have

expanded to include other strategies for identification and referral of individuals experiencing suicidality. One such strategy is to utilize individuals who naturally have contact with many people as “gatekeepers” to the identification and referral to treatment of individuals experiencing suicidality. Formal gatekeeper training programs have been developed and evaluated over the past 30 years, and these programs have generally been associated with improvements in knowledge about suicide, self-efficacy/perceived behavioral control in performing intervention behaviors, and more adaptive attitudes about suicidality and intervention (for more thorough review, see Burnette et al., 2015; Isaac et al., 2009). Gatekeepers usually targeted as coming into regular contact with individuals experiencing suicidality include first responders, caregivers, spiritual leaders, law enforcement, crisis line volunteers, individuals involved in the education system, resident advisors on college campuses, and health care providers (U.S. Department of Health and Human Services [U.S. DHHS] Office of the Surgeon General and National Action Alliance for Suicide Prevention, 2012). However, members of the lay population have increasingly been identified as being vital for intervening with a suicidal individual at a peer-to-peer level. Indeed, there is evidence that individuals experiencing suicidality—particularly young people—may be more likely to disclose this information to a friend rather than to a professional (Dubow et al., 1989; Drum et al., 2009) and may find responses from family and friends to be more helpful than those of mental health professionals (Knott & Range, 1998).

Many trainings for peer-to-peer interventions focus on situations wherein the disclosure of suicidality occurred in an in-person, face-to-face context. However, as advances in technology continue, the odds of suicidal disclosures occurring in an indirect,

non-face-to-face context increases as individuals experiencing suicidality may discuss these thoughts and feelings via the internet. As such, many individuals may learn of a peer's suicidal disclosures via electronic means, such as social media/networking websites like Facebook, Twitter, and Instagram.

This introduction will discuss the prevalence of suicidality on social networking websites and barriers to intervening with an individual experiencing suicidality on these websites. The bystander effect will be reviewed and discussed as it pertains to suicide intervention behaviors. Factors associated with bystander intervention will be reviewed, with particular attention paid to factors that might be unique to bystander intervention with an individual experiencing suicidality. Finally, the present study will be discussed and outlined.

Social Networking Websites and Suicidality

Social networking websites are defined as web-based services that allow users to create a profile, connect with other users (referred to as “friends” or “followers”), and view content of other users. These websites allow users to post content to their website (e.g., text-based statements, pictures, videos, etc.), which can be viewed and commented upon by others. Users also have some degree of control regarding whether their profile can be viewed only by their chosen group of friends/followers or by anybody (a “public” profile; Boyd & Ellison, 2008). Current examples of social networking websites include Facebook, Instagram, and Twitter. There has been a rapid increase in popularity of social media/networking sites since their development in the late 1990s and early 2000s. In 2018, 69% of all adults and 88% of young adults (ages 18-29) in the United States reported using at least one social networking website. Among young adults ages 18 to 24,

the most frequently used social networking websites are Facebook, Snapchat, and Instagram, with usage rates at 80%, 78%, and 71%, respectively. The majority of adults reported visiting these social networking websites on a daily basis, with Facebook being the most commonly-reported website visited daily (74%; Pew Research Center, 2018).

Although many people use social networking websites to share positive life events and pleasant emotions, others use these websites to communicate negative affect or mental health distress (Ehrenreich, & Underwood, 2016; Lin et al., 2014). Disclosing mental health distress and suicidality may be perceived as easier to do online rather than in-person. The perceived anonymity and lack of real-time responses from others leads to a disinhibition effect, resulting in an increased sharing of personal self-disclosures that individuals may not feel comfortable sharing in-person (Clark-Gordon et al., 2019; Suler, 2004). Additionally, there is some evidence that individuals experiencing suicidal ideation and mental illness may spend more time on the internet than others. One study found that 56.9% of individuals at risk for suicide went online for suicidal purposes (e.g., to seek information about, support for, or to communicate with others about suicide) and reported being less likely to communicate with friends and general practitioners about suicidality in favor of online resources or not seeking help at all (Harris et al., 2009). Thus, disclosures about suicidality may be increasingly common on social networking websites.

Researchers utilizing data-mining techniques (i.e., searching through large databases of social networking posts and flagging posts that contain key phrases, such as depression- or suicide-related content) have discovered a concerning number of posts depicting depression and suicide on social networking websites. Studies have found that

between a quarter and a third of college students' posts on Facebook indicated one or more symptom of depression (Moreno et al., 2011; Whitehill et al., 2013). Data mining investigations of posts on Twitter ("tweets") identified over 700,000 tweets containing suicide-related content over a three-month period (Jashinsky et al., 2014), with some authors estimating that up to 32 tweets per day have some degree of concerning suicidal content (O'Dea et al., 2015). A South Korean study investigating suicidal posts across a variety of websites (e.g., Twitter, internet blogs, message boards, online news sites) over a two-year period indicated that approximately 22-23% of online expressions made by adolescents were indicative of suicide risk (Song et al., 2016). Unsurprisingly, online posts about suicidality have been linked to suicidal ideation and actions in users. One Japanese study found that individuals who tweeted about wanting to die were twice as likely to report a history of suicidal ideation, suicidal planning, and suicide attempts, and individuals who tweeted about wanting to commit suicide were three times as likely to report a history of suicide attempts (Sueki, 2015). Another Australian study found that suicidal individuals who went online for suicide-related reasons reported greater suicidal and depressive symptoms in general, and noted that they felt more suicidal when seeking out suicide-related information online (Harris et al., 2009). Given these prevalence rates, it is likely that young adults may encounter a suicidal post on social networking websites that is reflective of genuine suicidal ideation in their peer.

The prevalence of suicidal posts on social media is also concerning due to the potential of viewing these posts leading to contagion; that is, the phenomenon wherein one suicide leads to an increase in suicidal thoughts/behaviors and possibly a cluster of subsequent suicides (Gould, 2001). There is evidence that portrayal of suicidality in other

forms of traditional media associated with an increase in subsequent suicidality, with most consistent findings associated with nonfiction accounts of suicide (e.g., descriptions of death by suicide in newspapers or other forms of media), especially if explicit descriptions of suicide are detailed (for review, see Gould, 2001; Pirkis & Blood, 2001). A recent example of this is the release of the television show *13 Reasons Why*, which contained a graphic depiction of suicide and was associated with an increase in youth suicide rates (Bridge et al., 2020; Sinyor et al., 2019), hospital admissions for suicidality (Cooper et al., 2018), access of crisis text lines (Sugg et al., 2019; Thompson et al., 2019), and internet searches for suicide-related content (both positive and negative; Ayers et al., 2017). Research into contagion effects of suicidal content on social media is still developing, although some preliminary evidence is available. Arendt, Scherr, and Romer (2019) found that exposure to self-harm content on Instagram was associated with personal self-harming behavior as well as suicidal ideation, plans, and risk, as well as an increase in these behaviors when measured again one month later. Interestingly, these effects occurred for participants who both intentionally sought out self-harm online content as well as those who were accidentally exposed, indicating that the potential impact of self-harm content exists regardless of whether the individual intended to view this content (Arendt et al., 2019). On the other hand, another study examining suicide-related events on Twitter (defined as a news story associated with over 100 tweets) did not find any significant association with suicide deaths (Sinyor et al., 2020). As such, there is still much to learn about the impact of suicide-related posts on social media and potential contagion effects.

It should be noted that social networking platforms are attempting to address posts that contain suicidality or reflections of mental health distress through automated functions. For example, in 2017 Facebook began to utilize a learning algorithm that identifies key words and phrases on users' posts as well as comments on the post, flags the post to be reviewed by a member of Facebook's Community Operations team, and provides the user making the post with support options. A news brief on Facebook's website also reported that in some instances Facebook may contact local authorities for wellness checks. However, this article noted that identifying and responding to these posts is a nuanced process that can be challenging for artificial intelligence. The article stressed that friends and loved ones are still vital to identifying and supporting suicidal individuals (Card, 2018). As such, it is still important for peers encountering a post containing suicidal content on social networking websites to intervene with the individual in some manner.

Interactions that occur over the internet may pose unique barriers to intervening with a peer experiencing suicidality that are not present in face-to-face interactions. Online interactions may exacerbate unhelpful or complete lack of intervention through the increased perceptions of anonymity when interacting on the internet. This feeling of anonymity and invisibility that occurs in online interactions is believed to be a contributing factor to disinhibited behavior online; while these feelings can result in more positive behaviors than those in which one would engage in real life (e.g., helpful and generous behaviors) in some instances, they can also lead more negative behaviors (e.g., critical, rude, and threatening behavior) at other times (Suler, 2004). With online social network intervention behavior for suicidal disclosures, these negative behaviors can

range from passively ignoring a concerning post to sharing the post indiscriminately or posting negative comments for the user to view rather than seeking help for or intervening with the individual. Wong and Bullock (2014) note that although feeling anonymous when interacting online may protect an individual from the consequences of intervention (leading to more disinhibited behavior), the anonymity can also serve as a justification for inaction. While the degree to which a social networking website user is actually anonymous varies from user to user (as users have some control over the degree to which their online profile reflects accurate information about their real-life identity), the majority of social networking websites provide the ability to choose whether other lay users are aware that the individual has seen specific content through engaging in an action such as commenting on the content. Thus, the user is able to choose whether he or she remains anonymous, possibly contributing to greater levels of inaction.

In addition to the challenges to intervening that come about due to the increased level of anonymity on the internet, it is also unclear if an average young adult possesses the skills and intentions to intervene with a suicidal peer—both online or otherwise. Young adults express low levels of confidence in their ability to effectively identify, talk with, and seek help for a friend at risk for suicide (King et al., 2008), although there is some evidence that young adults possess good intentions to intervene in some instances. In an experiment where college students selected intervention responses after viewing a simulated Facebook status containing suicidality, while very few participants indicated that they would do nothing to intervene, participants tended to report more direct forms of intervention (e.g., calling the person, meeting them in-person, calling the police) if the individual was a close friend (Corbitt-Hall et al., 2016) or the admission of suicidality

was very severe (Corbitt-Hall et al., 2016; Corbitt-Hall et al., 2018). However, in an analysis of responses to a suicidal post on a Chinese microblogging website (similar to Twitter in the United States), authors found that while a third of responses were positive or supportive in nature, only 16.8% indicated the need to call for help. More unsettling, nearly a quarter of the posts conveyed a negative, cynical, or indifferent attitude towards the user who made the suicidal post (Fu et al., 2013). This indicates that more investigation is needed into the ability of young adults to appropriately respond to disclosures of suicidality on social networking websites, particularly for individuals with whom the young adult may not be particularly close.

Thus, it is a high-probability occurrence that a young adult may encounter a suicidal disclosure from a peer via a social networking website, especially given the increasing prevalence of social networking website use. However, factors associated with the anonymity of online interactions as well as a possible lack of knowledge related to intervention behavior may decrease the odds of an individual intervening with a suicidal peer online. There is some evidence that additional situational factors may impact the type and quality of intervention behavior. However, there is one important component of social networking websites that may impact peer intervention behavior that has not been investigated in the aforementioned studies—the presence and behavior of other social networking website users. It is through the presence of these other social networking website users that the bystander effect—discussed below—may come into play.

The Bystander Effect

Inspired by the death of Kitty Genovese, a woman who was stabbed to death outside of her apartment complex while an estimated 38 neighbors did nothing to

intervene, the bystander effect was described by Latané and Darley (1970) as a way of explaining the phenomenon in which the presence of others decreases the chances that one will intervene in a crisis situation. There are several processes that contribute to the bystander effect. As the number of other bystanders increase, the odds of individual intervention behaviors decrease as one is able to “diffuse” the responsibility for action as well as the blame for inaction among the other bystanders; this phenomenon is referred to as diffusion of responsibility (Darley & Latané, 1968; Latané & Darley, 1970). The fear of acting incorrectly or making a mistake and being subsequently judged by others—referred to as evaluation apprehension or audience inhibition—also results in reluctance to intervene (Latané & Darley, 1970; Latané & Nida, 1981). Finally, the ambiguity of the situation impacts bystander intervention; when the situation requiring intervention is ambiguous rather than an obvious crisis, individuals tend to rely on the actions of others to inform their own behaviors. When others remain passive, individuals are more likely to remain passive as well; this is referred to as pluralistic ignorance or social influence (Latané & Darley, 1970; Latané & Nida, 1981). A large number of studies have provided support for the bystander effect (for review, see Fischer et al., 2011; Latané & Nida, 1981), and the effect is particularly strong in non-emergency situations, situations where there are more than two bystanders, and instances in which bystanders are passive and strangers (Fischer et al., 2011). Latané and Darley (1970) describe five necessary steps to overcoming the bystander effect and engaging in intervention behaviors despite the presence of other bystanders: noticing the event, interpreting the event as an emergency, accepting personal responsibility for intervening, possessing the skills needed to intervene, and taking action.

Although the bystander effect has been applied to a wide variety of intervention behaviors, there has been limited research that has investigated the impact of this phenomenon on peer-to-peer intervention behavior with suicidality. At the time of this manuscript, only one study (Kalafat et al., 1993) has investigated bystander intervention and suicide. In this study, authors had high school students read and respond to one of four vignettes depicting an admission of suicidal ideation by a peer. The vignettes contained either a high- or low-ambiguity admission of suicidality and a scenario that represented either a high or low diffusion of responsibility scenario (the admission was made in a group of people or to just the participant, respectively). The authors found that students were most likely to report that they would tell an adult about their peer's suicidality after reading vignettes representing a low-ambiguity admission and a low diffusion of responsibility scenario. On the other hand, students were more likely to report that they would ignore/do nothing to help their peer after reading vignettes depicting a high-ambiguity admission and a high diffusion of responsibility scenario. Students' responses—particularly those indicating inaction—also seemed to reflect their perceptions of what others might do to help the peer; of the students who reported that they would do nothing to help the peer, 71% reported that other students would do nothing to help the peer as well (Kalafat et al., 1993).

Although Kalafat and colleagues' (1993) study provides some preliminary evidence that the bystander effect occurs in public and ambiguous admissions of suicidality, there have not been any other studies investigating this phenomenon in peer-to-peer suicide intervention behavior. Additionally, there have not been any investigations into the potential impact of the bystander intervention on intervention

behavior for admissions of suicidality made on social networking websites, a context in which the bystander effect may be particularly salient. Although an individual may read a suicidal post from a peer while alone, the public nature of social networking websites implies bystanders—other individuals who have also witnessed that admission of suicide. This is reinforced by the ability of many social networking websites to allow others to comment on, share, or indicate that they have seen and emotionally responded to the post (e.g., by “liking” the post). Wong Lo and Bullock (2014) point out that the presence of bystanders can be even more widespread in online events than in-person events, as posts and online interactions can be shared and spread beyond the initial event, reaching a larger pool of bystanders. As the bystander effect and diffusion of responsibility are known to intensify as the number of bystanders increases (Fisher et al., 2011), this intensification may be particularly strong in online settings. However, as there is a lack of investigation into this phenomenon with online peer-to-peer suicide intervention behaviors, clues must be drawn from studies investigating other constructs.

There is evidence that the bystander effect is present in online interactions, including in requests for help in online chatrooms (Markey, 2000), discussion boards (Voelpel et al., 2008), and via email (Barron & Yechiam, 2002). However, the most evidence for the bystander effect in social networking website interactions comes from the cyberbullying literature. Through this literature as well as factors already known as being helpful in suicide intervention and other types of bystander intervention behaviors, hypotheses can be generated regarding the impact of the bystander effect on online disclosures of suicidality and factors that play a role in bystander intervention in these situations.

Severity and/or Explicit Nature of the Event

Intervention behaviors may vary based on the perception of the event in question as being clear/explicit or ambiguous. Allison and Bussey (2016) note that situational ambiguity can interfere with the first two steps of Latané and Darley's (1970) bystander intervention model—*noticing the situation and interpreting it as an emergency*. If the situation is not clear, explicit, or severe, individuals may be unsure about the need to intervene or may not identify the situation as an opportunity to intervene at all. Additionally, in unclear or ambiguous situations, individuals are more likely to look to the behaviors of others to determine the proper course of action, thus exacerbating the bystander effect in these situations (Latané & Darley, 1970; Latané & Nida, 1981).

Situational ambiguity has been associated with lower rates of bystander intervention in several types of bystander behavior, including sexual assault (Labhardt et al., 2017), and anti-racism (Nelson et al., 2011). Ambiguity and perceptions of event severity have been shown to impact online intervention behaviors in the context of cyberbullying. In a Flemish study, adolescents reported greater intentions to help a cyberbullying victim when exposed to a more severe event than a less severe event; this effect was such that participants reported intentions to intervene even when other passive bystanders were good friends (Bastiaensens et al., 2014). Brody and Vangelisti (2016) also found that perceptions of severity (hurtfulness) of undergraduate participant recollections of a cyberbullying incident they witnessed was associated with defending the victim.

There is evidence that the degree of clarity or ambiguity within suicidal disclosures may impact recognition of the need to intervene. In the context of suicidal

disclosures, clear/explicit disclosures are those that directly state suicidal intentions and/or reflect severe risk of suicide, whereas ambiguous disclosures reference distress that may serve as warning signs for but does not directly state suicidal intentions. Kalafat and colleagues (1993) found that adolescent participants were significantly more likely to indicate recognition that a vignette depicted suicidality when the depiction contained low ambiguity rather than high ambiguity, suggesting that the foundational step of recognizing that a peer's statement may indicate suicidality is more difficult when the statement is ambiguous in nature.

Kalafat and colleagues (1993) found that the level of ambiguity in a suicidal disclosure impacts subsequent intervention behaviors as well. In their study, adolescents were more likely to report that they would talk to an adult (rather than talk to the peer alone or do nothing to help their peer) about a suicidal peer depicted in a vignette when the peer made low-ambiguity rather than high-ambiguity statements about suicide. Although the presence of other bystanders decreased this effect, just over half of participants reported that they would talk to an adult about this peer even in the presence of other bystanders (52%, compared to 63% in a no-bystander context). In contrast, participants reported that they would rather talk to the peer alone in situations where the peer made a highly ambiguous statement (ranging from 51% to 58% in situations with many to no bystanders, respectively), and the presence of other bystanders in these situations notably increased the extent to which participants indicated that they would do nothing to help the peer from 8% to 23% (Kalafat et al., 1993). This indicates that while explicit admissions of suicidality may diminish the impact of other bystanders on peer intervention behavior, ambiguous statements may result in a stronger effect of bystanders

on inaction or low-quality intervention behavior. A later study examining ambiguous suicidal disclosures found that while participating in a suicide prevention gatekeeper training program increased the percentage of adolescents who reported they would tell an adult rather than talk to or ignore a suicidal peer in a similar vignette, at the end of the intervention, over half (51.9%) of adolescents reported that they would talk to the peer alone in the instance of an ambiguous suicidal disclosure (compared to 40.4% in a non-ambiguous suicidal disclosure; Kalafat & Gagliano, 1996). As noted above, college students were significantly more likely to provide support for peers disclosing suicidality online when the suicidal disclosure indicated moderate- to high-risk suicidality (more explicit posts) as opposed to low-risk suicidality (more ambiguous statements; Corbitt-Hall et al., 2016; 2018). Similarly, a qualitative study revealed college students were more likely to respond to social networking posts if the post clearly reflected serious distress, including if they were not particularly close to the individual who made the post (Chang et al., 2018). Thus, the level of ambiguity in a suicidal statement impacts the quality of peer intervention behavior and exacerbates the bystander effect.

Number of Bystanders

The number of other individuals who witness the event in question has a notable impact on intervention behavior. As diffusion of responsibility increases with the number of bystanders, the number of people present to witness a suicidal disclosure impacts the third step of Latané and Darley's (1970) bystander intervention model—accepting responsibility to intervene. Interestingly, the number of other bystanders present does not need to be particularly large to yield a notable reduction in intervention behavior. In early bystander effect research, the number of individuals that responded to a simulated

emergency decreased from 85% to 62% when just one bystander was present, and decreased to 31% when four additional bystanders were present (Darley & Latané, 1968). Generally speaking, most studies produce stronger effects when at least two bystanders are present (Fischer et al., 2011).

As noted above, there is evidence that the presence of bystanders reduces the extent to which adolescents indicate they would intervene with a suicidal peer, particularly when the suicidal disclosure is ambiguous in nature (Kalafat et al., 1993). No specific number of bystanders was defined in this study, and bystanders were described as “a small group of friends” (p. 236) or a “group of mutual friends” (p. 236; Kalafat et al., 1993). Thus, the presence of bystanders impacts peer intervention for suicidal behavior, although the specific number of peers needed to produce this effect is open to interpretation.

The number of bystanders needed to elicit the bystander effect is relevant for social networking websites. Although one may not be in the presence of others when posting to social networking websites, posts are made with the expectation that they will be viewed by a wide audience. In 2015, a typical adolescent had around 150 contacts on Facebook and Instagram, with the number of friends/followers increasing as the adolescent got older (Lenhart, 2015). Posts also have the opportunity to be shared widely beyond the audience of the original poster. One case study of a suicidal message on a microblogging website found that this message was shared over 3,000 times, with nearly 6,000 individuals commenting on the message at the time of data collection (Fu et al., 2013). Thus, observers of suicidal posts on social networking websites have knowledge

that countless other bystanders have viewed the post through either the implied presence of others or viewing the comments or shares of other bystanders.

However, similar to in-person bystander effects, cyberbullying research suggests that large numbers of bystanders are not needed to produce an effect. For example, while one study found decreases in responsibility and likelihood of intervening with cyberbullying between two bystanders and over 5,000 bystanders, there were no differences between 24 and 5,000 bystanders (Obermaier et al., 2014), indicating that there may be a threshold of number of others present at which the bystander effect does not increase. Similarly, in a study where Czech adolescents were asked to recall their responses in the most severe cyberbullying incident they encountered, adolescents reported providing significantly more support to victims in situations with a small number of bystanders (one or two people) than in situations with any other number of bystanders, with comparable rates of support in situations with a moderate (three to 10) and large (over 10) number of bystanders (Machackova et al., 2015). Thus, while certainly more than two bystanders need to be present to produce an effect, the number of bystanders needed to produce this effect is still relatively small.

Type of Relationship with Other Bystanders and/or Individual Expressing Suicidality

The impact of bystanders may not only be related to the number of bystanders but also the individual's relationship to these bystanders as well as their relationship to the individual posting suicidal content. Although Fischer and colleagues (2011) note that the bystander effect is smallest in situations where bystanders know each other, the behavior of the bystanders (i.e., action or inaction) may also impact intervention behaviors.

Additionally, a close relationship with the target of the intervention reduces the bystander

effect and increases intervention behavior. This has implications for social networking websites; with a typical individual having hundreds of connections on social networking platforms, it is unlikely that this individual is close friends with each connection yet may still be exposed to concerning content posted by the individual. Similarly, the relationship between the individual and each bystander who has seen and/or commented on the suicidal post may also impact intervention behaviors.

Although there have not been any investigations into how the type of relationship interacts with the bystander effect in suicidality, there is evidence that type of relationship has an impact on peer intervention behavior for suicidal disclosures. When college students were asked how they would respond to simulated Facebook posts depicting suicidality, participants were most likely to say that they would take no action if they presumed that they had a distant relationship (e.g., a stranger, someone they are only friends with on Facebook) with the individual posting the content. Additionally, they reported that they were more likely to arrange an in-person contact if the individual posting the content was a close friend or family member as opposed to an acquaintance or stranger (Corbitt-Hall et al., 2016). Focus groups of university students also revealed a theme of relationship quality dictating the way in which individuals would respond to Facebook status updates indicating mental health difficulties. Most participants reported that if a close friend posted such a status update that they would respond by calling them or talking to them in-person. However, participants described more discomfort and concerns about respecting privacy if an acquaintance or less-familiar individual posted such a status update; in these instances, participants indicated a preference for talking to another person about the individual, such as a mutual friend, counselor, or the police

(Chang et al., 2018; Egan et al., 2013). Participants also noted that they take more information into consideration when deciding to intervene with a non-close individual, including the severity of the post, how effective they believe intervention will be, the perceived motivation of the individual making the post, and how other viewers of the post have responded (Chang et al., 2018).

Indeed, research in the cyberbullying literature supports the notion that more contextual information is taken into consideration along with type of relationship with the victims or bystanders in cyberbullying situations. Bastiaensens and colleagues (2014) found that relationship with the bystanders may interact with the severity of cyberbullying situations; in low-severity situations, participants were more likely to report intentions to provide comfort to the victim when the bystanders were acquaintances rather than close friends but in high severity situations were more likely to report intentions provide comfort to the victim when the bystanders were close friends rather than acquaintances. Likewise, Brody and Vangelisti (2016) found that participants reported more defending of victims of cyberbullying when the victim was a close friend, but particularly in conditions where there were low numbers of bystanders and the participant did not perceive themselves to be anonymous.

Thus, the degree of closeness the individual has with the peer expressing suicidality may also impact the extent to which he/she feels a personal responsibility to intervene or changes the types of behavior he/she would use to intervene. Individuals may feel more responsibility to intervene and may engage in higher-quality intervention behaviors (e.g., immediately calling the person or arranging an in-person contact) when the individual disclosing suicidal content is a close friend as opposed to an acquaintance

or relative stranger. However, as individuals may not be close friends with many of their connections on social networking websites, there may be many missed opportunities for intervention.

Self-Efficacy/Perceived Behavioral Control

Self-efficacy refers to beliefs that an individual has about their ability to successfully engage in a particular goal-directed behavior, including the amount of effort the individual is willing to expend in the face of barriers (Bandura, 1977). Within the context of responding to a suicidal disclosure, this refers to an individual's confidence and perceived capabilities to successfully intervene with a peer experiencing suicidality, as well as beliefs that this behavior can be successful in reducing peer suicidality. Self-efficacy is relevant to the final steps of Latane and Darley's (1970) bystander intervention model—believing that one possesses the skills to intervene and then taking action to intervene. Individuals who believe that they do not possess the skills or ability to intervene with a peer expressing suicidality may be unlikely to do so. Perceived behavioral control (PBC) is a component of the Theory of Planned Behavior, and is described as “the perceived ease or difficulty of performing the behavior” (Ajzen, 1991, p. 188). Self-efficacy and PBC share several similarities, although it is noted that a distinction between the constructs is that PBC refers to a level of control over the behavioral performance, while self-efficacy refers to beliefs about behavioral capabilities (Ajzen, 2002).

Higher levels of self-efficacy, confidence, and perceived control with intervention have been associated with greater intentions to intervene with a suicidal peer as well as subsequent intervention behaviors in several studies of gatekeeper intervention behavior

(Aldrich, 2015; Cimini et al., 2014; Deane et al., 2006; Foster et al., 2017; Kuhlman et al., 2017; Mason et al., 2015; Rosetto et al., 2016). Although self-efficacy and PBC have not been investigated in the context of bystander intervention for admissions of peer suicidality, there is evidence that self-efficacy and PBC are associated with bystander action behaviors in other situations. Within cyberbullying research, there is evidence that self-efficacy and feelings of control are positively associated with providing help to victims (Machackova et al., 2015; Song & Oh, 2018). Perceptions and confidence regarding one's ability to intervene (i.e., the skills and knowledge needed to intervene) as well as the belief that intervention will be effective is also related to bystander intervention for anti-racism behaviors (Nelson et al., 2011) and sexual assault (Labhardt et al., 2017).

However, self-efficacy and PBC to intervene may be impacted by other contextual factors. A Chinese study found that participants reported greater control beliefs about helping a cyberbullying victim in conditions in which other bystanders were also defending the victim rather than supporting the bully, indicating that self-efficacy/PBC may be related to the behaviors of other bystanders (Leung et al., 2018). Labhardt and colleagues (2017) also make note of evidence that intervention confidence is increased by the presence of peer support, as well as a sense of control over the situation and in the instance of a low-risk situation. Thus, self-efficacy and PBC likely interact with other aspects of the situation to increase the likelihood of intervention behaviors in favorable conditions.

Gender

There are mixed findings related to gender differences and bystander intervention behavior. Original bystander research did not find gender differences in bystander responding (e.g., Darley & Latané, 1968), and a recent meta-analysis noted that overall no gender differences have been found regarding participant intervention (Fischer et al., 2011). However, there is some evidence that female bystanders are more likely to intervene in some situations, including some instances of cyberbullying (Bastiaensens et al., 2014), sexual assault contexts (Labhardt et al., 2017), and suicidality.

Regarding suicidality, the evidence is somewhat stronger that female bystanders may be more likely to intervene due to gender differences in attitudes and reactions to suicidality. Adolescent and young adult studies have found that females tend to hold more adaptive attitudes towards suicidality (Overholser et al., 1989; Petrova et al., 2015) and possess more accurate knowledge about suicidal warning signs and behaviors than males (Indelicato et al., 2011; Overholser et al., 1989). These positive attitudes may translate into more frequent and higher-quality peer intervention behaviors for females. Female adolescents have been found to be more agreeable than males to refer peers as well as themselves for mental health services (Raviv et al., 2000). Kalafat and colleagues (1993) found that after reading a vignette depicting a suicidal peer, females were more likely to report that they would tell an adult about the peer and males were more likely to report that they would ignore the peer. A follow-up study also found that females expressed more concern regarding a peer's suicidal disclosures than males (Kalafat & Gagliano, 1996). Female adolescents had greater intentions to intervene and were more likely to list action steps of recommending adult help when presented with a vignette of a

depressed and suicidal peer (Mason et al., 2015). An evaluation of a gatekeeper training program conducted with undergraduates found that females exhibited better crisis response skills both before and after the training (Pasco et al., 2012). Thus, although the evidence for gender differences in bystander intervention across situations is mixed, there is some evidence that females may intervene more than males, especially in instances of suicidality.

Personal Experience with Intervention Situation at Hand

Individuals may be more likely to intervene in situations in which they have personal experience with the situation at hand. For example, women are more likely to intervene in situations of sexual assault if they have previously been the victims of sexual assault and/or are aware of the consequences of sexual assault behaviors (Labhardt et al., 2017). Additionally, participants who had experienced cyberbullying victimization themselves also reported higher control beliefs about helping the victim (Leung et al., 2018). Conversely, participants who had engaged in perpetration of cyberbullying in the past were less likely to help victims of cyberbullying (Song & Oh, 2018).

Previous research on gatekeeper intervention behavior has shown that individuals who have prior experience with intervening with a suicidal individual are more likely to do so in the future (Aldrich, 2015; Cross et al., 2011; Wyman et al., 2008). Additionally, individuals who experienced the suicidality of a loved one expressed more confidence in intervening with a suicidal friend (King et al., 2008) and were more likely provide positive support after viewing a mock Facebook post indicating suicidality (Corbitt-Hall et al., 2018). The authors hypothesize that the direct experience of a loved one's suicide attempt reduces stigma associated with suicidality and increases a sense of emotional

investment in intervening with a person in distress (Corbitt-Hall et al., 2018). As such, it is possible that individuals who have prior experience with suicidality or who have intervened with suicidal peers in the past may be more likely to continue to do so in the future, potentially regardless of the presence of bystanders.

Summary of Literature and Present Study

In sum, young adults are likely to encounter opportunities to intervene with a peer experiencing suicidality, especially in online contexts. However, online contexts may pose challenges to intervening, including inaction due to anonymity, lack of knowledge regarding how to intervene, and contextual factors. Additionally, there has been very limited research on how the presence of other bystanders witnessing the suicidal disclosure impacts individual intervention behavior, especially in an online context. In reviewing research on the bystander effect in instances of cyberbullying as well as factors that impact intervention behavior with suicidal peers, it was found that intervention behaviors are impacted by the degree of severity/ambiguity of the statement (Bastiaensens et al., 2014; Brody & Vangelisti, 2016; Chang et al., 2018; Corbitt-Hall et al., 2016; 2018; Kalafat et al., 1993; Kalafat & Gagliano, 1996), the number and type of bystanders (Bastiaensens et al., 2014; Brody & Vangelisti, 2016; Chang et al., 2018; Corbitt-Hall et al., 2016; Egan et al., 2013; Machackova et al., 2015; Obermaier et al., 2014), and the individual's gender (Bastiaensens et al., 2014; Kalafat & Gagliano, 1996; Pasco et al., 2012; Raviv et al., 2000), level of self-efficacy and PBC to intervene (Aldrich, 2015; Cimini et al., 2014; Deane et al., 2006; Foster et al., 2017; Kuhlman et al., 2017; Machackova et al., 2015; Mason et al., 2015; Rosetto et al., 2016; Song & Oh,

2018), and prior exposure with suicide intervention (Aldrich, 2015; Corbitt-Hall et al., 2018; Cross et al., 2011; Leung et al., 2018; Wyman et al., 2008).

The present study investigated the impact of the bystander effect on peer intervention behaviors when confronted with suicidal disclosures on social media/networking websites, as well as the impact of the explicit or ambiguous nature of the statement on the bystander effect and intervention behavior. In this study, participants viewed a simulated social networking (Facebook) website that included a mock post that contained either an ambiguous or explicit suicidal statement and was witnessed by either no bystanders, nonsupportive bystanders, or supportive bystanders. Bystanders were represented by other social networking website users commenting on the post. After viewing the news feed with the suicidal post, participants were asked to describe ways in which they would respond to the post, if at all.

Design Overview

This study had two main independent variables. The first independent variable was the degree of ambiguity of the suicidal statement and consists of two levels—an ambiguous statement or an explicit statement. The second independent variable was the bystander presence and response and consists of three levels—no bystanders, nonsupportive bystanders, or supportive bystanders. As such, participants in this study were sorted into six conditions. More information about the specific design of these independent variables and each of the six conditions can be found in the Procedures section. The primary dependent variable of this study was the quality of intervention behaviors reported by participants. This dependent variable was continuous in nature; more information regarding how this was measured is described below in the Measures

section. A second dependent variable that represented whether or not participants responded to the post was also utilized; this was a dichotomous variable.

Aims and Hypotheses

The aims of this study and relevant hypotheses were as follows:

Aim 1. The first aim of this study was to determine the impact of an explicit or ambiguous suicidal statement on bystander intervention for suicidality in a social media context. As such, it was hypothesized that participants confronted with an explicit suicidal disclosure would be more likely to report intervention behaviors and would report higher-quality intervention behaviors than an ambiguous disclosure, regardless of the presence/absence of others.

Aim 2. The second aim of this study was to determine how the behavior of other bystanders impacts bystander intervention behaviors, particularly in the event of an ambiguous suicidal disclosure. As such, it is hypothesized that intervention behaviors of participants confronted with an ambiguous suicidal disclosure would vary based on the perceived presence and actions of bystanders, with participants more likely to intervene and reporting higher-quality intervention behaviors when 1) there were no bystanders and 2) when bystanders endorsed supportive intervention attitudes rather than nonsupportive attitudes.

Aim 3. The final aim of this study was to investigate the ways in which intrapersonal variables—specifically, PBC, gender, and prior experience with suicide intervention—impact bystander intervention behaviors. It was hypothesized that women, individuals with higher levels of PBC in intervening with a peer experiencing suicidality, and individuals with prior experience intervening with a peer experiencing suicidality

would report more intervention behaviors as well as higher-quality intervention behaviors.

Chapter 2

Methods

Participants

Participants for this study were recruited from Amazon's Mechanical Turk (MTurk), an online service where workers receive small monetary compensations (usually less than one dollar) to complete tasks, including survey completion. This service provides researchers with a sample that is generally more diverse than the standard college convenience sample, increasing the generalizability of results across populations. Additionally, surveys completed via MTurk have comparable levels of reliability to traditional methods (Buhrmester et al., 2011) and replication studies have shown that MTurk responses do not differ significantly from those of national samples (Coppock, 2019).

Participants recruited were between the ages of 18 and 25, the young adult age qualifications bracket as defined by the MTurk platform. To ensure accurate interpretation of messages communicated, participants who did not indicate that the United States is their country of origin and English is their primary language were excluded. Additionally, participants who indicated that they had never used Facebook (the social networking website utilized in this study) were excluded. Participants were compensated \$.30 for their participation. This experiment was available to participants on MTurk in batches of ten; that is, only ten solicitations for participation were available and collected at a time. This ensured that the primary researcher was able to review responses

and manually compensate participants promptly and to allow the experiment to be regularly visible to new participants as new batches were made available.

In total, 607 participants completed the survey, resulting in 312 participants who met inclusion criteria and provided valid responses (see Procedures section for information regarding validity). Sixty-seven percent of the participants identified as female, 28.8% identified as male, and 3.2% identified as transgender or nonbinary. The average age of participants was 23 ($M = 23.08$, $SD = 1.68$). The majority of participants were Caucasian (73.7%), followed by Black/African American (8.5%), multiracial (6.6%), Asian (5.7%), other (2.5%), Native Hawaiian/Pacific Islander (0.9%), and American Indian/Alaska Native (0.6%); 13% of participants indicated that they were Hispanic or Latino. Regarding level of education, 7% of participants reported holding a professional degree, 36.1% reported holding a four-year degree, 9.2% reported holding a two-year degree, 36.1% reported attending some college, 9.8% reported being a high school graduate, and 0.3% of reported less than a high school education. Demographic characteristics can be found in Table 2.1.

Measures

Demographics and Social Networking Usage

Participants were asked to report standard demographic information, including age, sex, race/ethnicity, and highest level of education. Country of origin and primary language were included as screener questions. Additionally, participants were asked to report on their frequency of usage for several popular social networking websites, such as Facebook, Instagram, Twitter, and Snapchat. As the social networking website utilized in this experiment was Facebook, participants who indicated that they had never used

Facebook were not included in this study. Social networking websites were referred to as “social media” in this questionnaire, as this is the colloquial term.

Intervention Behavior

Intervention behavior was measured by an open-ended item presented to participants after they viewed the mock post with suicidal content, asking participants, “What—if anything—would be the one thing you would do if you saw this content?” Responses to this item are referred to as “primary responses” in this paper. Participants were shown a second open-ended item, “is there anything else you would do in response to this content?” on the same page that allowed them to elaborate on their earlier response or list additional responses they might make. Responses to this item are referred to as “expanded responses” in this paper. Open-ended responses were chosen as they may be more realistic to responses evoked when encountering this situation in real life, and may be more representative of actual intervention knowledge recall (see Labouliere et al., 2015).

Participants’ responses were coded into a variable that assessed the presence, immediacy and helping quality of participants’ intentions to intervene with a peer experiencing suicidality. Quality of intervention behaviors was informed by recommendations from the Centre for Suicide Prevention, an online education center with the goal of educating and providing training members of the general public about how to respond to a peer experiencing suicide (Olson, 2011). During the piloting process (described below), the primary researcher developed a coding manual that distinguished categories representing tiers of response quality, and revisions were made to this codebook during training of the reliability coder. In determining response quality, both

the immediacy (i.e., how quickly the response can be expected to reach a peer experiencing suicidality) and quality of the helping behavior (i.e., the extent to which the response is an example of a helpful response to a peer experiencing suicidality) were considered.

Immediacy was described as being either low or high. Low immediacy was defined as reaching out to the individual through a means unlikely to result in immediate assistance (e.g., reaching out through the social networking website or through a mutual friend). High immediacy was defined as reaching out to the individual through a means that was very likely to result in immediate assistance (e.g., calling or visiting the person, calling the police). Responses made entirely through the social networking website were considered low immediacy as these responses do not guarantee that the peer experiencing suicidality would receive the response soon enough to prevent suicidal behavior.

Additionally, there is qualitative evidence that the majority of individuals who express depressive symptoms on social networking websites (i.e., Facebook) would prefer individuals directly communicate with them (i.e., talk to them or call them) rather than communicate with them electronically if they were concerned about a social networking post, particularly if this individual was a friend (Whitehill et al., 2013).

Helping quality was described as being low/limited, intermediate, or high. Low helping responses were defined as containing no specific statement of trying to help the individual but some degree of positive responding (e.g., commenting on the post, messaging the person a positive statement). Intermediate helping responses contained an ambiguous statement of trying to help the individual (e.g., checking in that the individual was okay) or an indication that they would try to help the individual themselves as

opposed to utilizing formal helping resources. Reporting the post through the social networking website was also considered an intermediate (and low-immediacy) helping behavior. High helping responses were defined as containing a specific statement of seeking help through means other than oneself (e.g., calling 911).

Using these definitions, eight coding categories were developed, with scores ranging from 1-6 (two categories were given identical scores to represent roughly equivalent quality of helping behaviors between the two categories): No response (coded as a 1), limited response (coded as a 2), low immediacy/low helping (coded as a 3), high immediacy/low helping (coded as a 4), low immediacy/intermediate helping (coded as a 4), high helping/intermediate helping (coded as a 5), low immediacy/high helping (coded as a 5), high immediacy/high helping (coded as a 6). If the participant listed multiple responses, the highest-quality response was coded. The codebook utilized is included in the Appendix. Interrater reliability was determined by utilizing reliability coders on a subset of items; this will be described in greater detail below.

Perceptions of Condition

After providing their responses to the post, participants were asked to report on their recall of the experimental social media post and presence of bystanders on the post. To assess adequate recall, participants were asked to identify the experimental statement out of four choices. To assess attending to bystanders, participants were asked to report how many people they believed saw the individual's post. An option to select "I do not recall" was included to minimize guessing. Participants who incorrectly recalled or reported that they did not recall the statement made in the post were excluded from data analysis. Additionally, participants who significantly misidentified the number of

bystanders in their condition (i.e., participants in the bystander conditions who selected that they are the only person who saw the individual's post and participants in the no-bystander condition who selected that other bystanders saw the post) or who reported that they did not recall number of bystanders were excluded from data analysis.

Perceptions of Post Severity

Perceptions of the severity of the post was assessed by asking participants to report on the extent to which they were concerned that the post in question indicated suicidality or a mental health crisis via five-point Likert scales. Perceptions of bystanders' interpretation of severity were assessed in bystander conditions by asking participants to report on how concerned they believed the other people who viewed the post were that the individual who made the post was suicidal or experiencing a mental health crisis via five-point Likert scales.

PBC Related to Suicide Intervention

Confidence, efficacy, and a sense of behavioral control over suicide intervention was measured via the Perceived Behavioral Control subscale of the Willingness to Intervene Scale (WIS), which contains items that include PBC beliefs regarding discussing, intervening, and seeking help for a suicidal individual (Aldrich et al., 2014). This subscale consists of 20 items rated on a five-point Likert scale. The WIS has exhibited acceptable levels of internal consistency as well as a consistent factor structure (Aldrich et al., 2014). Sample items include, "I am confident I can express my concern as a caring friend to someone who is suicidal" and "I am confident I could call a crisis hotline for help and advice." Three items are worded to be specific to a college population, referencing campus resources, resident advisors, or professors; these items

were revised slightly to eliminate these college-specific references. For example, the item “I would be able to locate someone on campus for the suicidal person to talk to” was changed to “I would be able to locate someone for the suicidal person to talk to.”

Prior Experience with Suicide Intervention

Suicide intervention both on and off social media/networking websites was assessed. Participants were asked two dichotomous (yes/no) questions to assess if they were ever concerned that a user’s post on social media indicated that they were suicidal or experiencing a mental health crisis. If they responded yes to either item, they were asked to select all intervention responses that apply from the following list: *I did not take any action; I reported the post to the social media platform; I contacted the person through the social media platform; I contacted the person through email, online message, or other form of electronic communication; I contacted the person through a text message; I called the person on the phone; I called a suicide/crisis hotline, 911, or the police; I talked to this individual in-person; I talked to someone else about this person to try to get them help; other (specify)*. These responses are similar to forced-choice intervention responses utilized by Corbitt-Hall and colleagues (2016). Experience with suicide intervention that occurred outside of social media were assessed by two dichotomous (yes/no) questions asking participants if they were ever concerned that someone they know (a friend, family member or acquaintance) was suicidal or experiencing a mental health crisis. If they responded yes to either item, the same intervention behavior list was presented to them, with social media-specific responses removed. Additionally, participants that indicated that they were concerned about another

person's mental health or suicidality both on and off social media were asked to approximate the number of occasions this has occurred via forced-choice items.

Personal Experience with Suicidality and/or Mental Health Services

Participants were asked about lifetime history of a mental health condition or illness and lifetime treatment for mental health condition or illness (counseling/therapy or medication) via two yes/no items. Additionally, participants were asked about lifetime suicidality by two yes/no items assessing seriously considering attempting suicide and attempting suicide. Opportunities for participants to indicate that they are unsure or that they preferred not to respond were provided on all items.

Procedures

The social networking platform selected for this experiment was Facebook. Given that Facebook remains the most prevalently-used social networking website for young adults in 2018, as well as the most prevalently-used social networking website to be used on a daily basis (Pew Research Center, 2018), this increased the likelihood that participants would be familiar with the website and that the results of this study would best simulate encounters that may occur in participants' real lives.

Before the study entered the piloting phase, the mock Facebook page and any statuses and comments—both experimental and filler—received inputs and edits from a small group of undergraduate psychology students ($N = 6$) working with the primary author. The main purpose of this was to ensure that the design of the page and the content posted was a realistic reflection of a Facebook page one might encounter in their real life. Additionally, this group assisted in determining the specific wording of ambiguous/explicit experimental posts as well as nonsupportive/supportive experimental

comments. This was completed by compiling several options for each experimental status and bystander comments and asking this group to rate each statement on a five-point Likert scale. The experimental post statements and bystander comments that received the highest degree of interrater reliability as accurately reflecting their intended construct were chosen for use in this experiment. Using this process, the explicit statement chosen for this study was “This life has finally pushed me past the breaking point. I’m ending it all tonight. Goodbye,” and the ambiguous statement was “I don’t know how much more of this life I can take.” Supportive comments included “feel better, I love you,” “I hate to see you hurting like this,” “please don’t—you are a wonderful person,” “I’m here for you if you need me,” and “don’t give up—life is so important. Things will get better, I promise.” Nonsupportive comments included “you just want attention,” “get a life,” “ugh. Who cares??,” “get your shit together,” and “unsubscribe.”

The study underwent piloting through a small sample of undergraduate students ($N = 72$). The average age of pilot participants was 19 ($M = 19.91$, $SD = 2.04$). The pilot sample was largely female (86.3%) and Caucasian (80.6%), and the majority of pilot participants reported attending some college (69.9%). Additional demographic information about pilot participants can be found in Table 2.2. The purpose of piloting was to ensure understanding of the task expected of participants and to further ensure the realism of the simulated Facebook posts and news feed; participants had the opportunity to provide feedback about these aspects of the study. No substantial changes were made to the study following piloting. As noted above, an initial coding manual was developed based on the responses obtained during piloting. These pilot data were not included in final analyses.

Participants were told that this study examines social media use in young adults in order to minimize the potential of bias in responding (i.e., participants providing responses that do not reflect their real-life behaviors due to knowledge that the study assesses suicide intervention behaviors). This is similar to study descriptions used by Corbitt-Hall and colleagues (2016). Participants first completed demographic and social network usage questions. Participants were instructed through the survey that they would view a Facebook news feed and were asked to select which posts on the news feed they would respond to were they to encounter the post in their real life. Participants were then asked how they would respond to these posts through an open-ended question within the survey. They were instructed to consider each individual within the newsfeed (the individual who made the posts as well as any individuals who comment on the posts) to be acquaintances, defined as people they see and occasionally talk to in their real life. As evidence suggests that an individual's perception of the closeness of the relationship impacts intervention behaviors (Chang et al., 2018; Corbitt-Hall et al., 2016; Egan et al., 2018), this will hold perception of the relationship as constant and minimize the potential confound of participants making differing assumptions regarding the closeness of and type of relationship.

During the experimental task, participants viewed a simulated Facebook news feed. The news feed consisted of five simulated posts, one of which was the experimental condition post. The other four posts were neutral "filler" posts designed to simulate real-life content on Facebook (e.g., memes, comments about daily stressors). Participants were asked to select posts on the news feed they would respond to were they to encounter the post in their real life; participants were also allowed to select the status bar and

notifications tab on the mock page. Later in the task, participants were asked specifically how they would respond to these posts. Participants viewed the news feed for a minimum of 30 seconds before they were able to move to the next page in the experiment.

The experimental post within the simulated Facebook news feed consisted of one of six mock social networking website posts: 1) explicit statement with supportive bystanders; 2) explicit statement with nonsupportive bystanders; 3) explicit statement with no bystanders; 4) ambiguous statement with supportive bystanders 5) ambiguous statement with nonsupportive bystanders; 6) ambiguous statement with no bystanders. The post condition each participant viewed in the simulated news feed was randomly assigned by the survey platform (Qualtrics); total number of participants in each condition can be found in Table 2.3. The conditions reflecting supportive or nonsupportive bystanders were viewed as posts on the simulated news feed while the conditions reflecting no bystanders were viewed as being direct messages sent through the messenger feature of Facebook, which was displayed in the bottom right corner of the feed.

After observing the simulated news feed, participants were asked, “what—if anything—would be the one thing you would do if you saw this content?” for each separate piece of content they indicated they would respond to via open-ended items with no character limits. Participants were asked to list the “one thing” they would do in response to the post to eliminate the potential for participants who provided lengthy responses receiving ratings of higher quality responses than participants who provided succinct responses as a function of response length rather than genuine quality.

Participants were shown a second open-ended item, “is there anything else you would do

in response to this content?” on the same page to allow them to elaborate on their earlier response or list additional responses they might make.

After completing these open-ended items, participants completed the remainder of the survey items, including perception of condition items, perceptions of post severity, the Perceived Behavioral Control section of the Willingness to Intervene Scale (WIS), and items assessing experience with suicide intervention and history of personal suicidality. After completing survey items, participants reviewed a debriefing sheet that explained the study and included the number for the National Suicide Prevention Hotline, with instructions to call if the participant was experiencing suicidal thoughts.

Table 2.1 Demographic characteristics of participants

Demographic variable	N (%)
Gender	
Female	212 (67.1%)
Male	90 (28.5%)
Transgender/nonbinary	10 (3.2%)
Race/ethnicity	
American Indian or Alaska Native	2 (0.6%)
Asian	18 (5.7%)
Black or African American	27 (8.54%)
Native Hawaiian or Pacific Islander	3 (0.9%)
White	233 (73.7%)
Other	8 (2.5%)
Multiracial	21 (6.6%)
Hispanic/Latino	41 (13.0%)
Highest level of education	
Less than a high school degree	1 (0.3%)
High school degree	31 (9.8%)
Some college	114 (36.1%)
Two-year degree	29 (9.2%)
Four-year degree	114 (36.1%)
Professional degree	22 (7%)

Table 2.2 Demographic characteristics of pilot participants

Demographic variable	N (%)
Gender	
Female	60 (82.2%)
Male	12 (16.4%)
Race/ethnicity	
Asian	2 (2.8%)
Black or African American	4 (5.6%)
White	58 (80.6%)
Other	3 (4.2%)
Multiracial	5 (6.9%)
Hispanic/Latino	4 (5.5%)
Highest level of education	
High school degree	15 (20.5%)
Some college	51 (69.9%)
Two-year degree	4 (5.5%)
Four-year degree	2 (2.7%)

Table 2.3 Mean response quality within and across conditions

	N	Average response quality
		code
		<i>M (SD)</i>
Explicit/ambiguous statement conditions		
Explicit statement	171	2.96 (1.38)
Ambiguous statement	141	2.53 (1.16)
Bystander conditions		
Supportive bystanders	104	2.46 (1.25)
Nonsupportive bystanders	108	2.59 (1.44)
No bystanders	100	3.28 (1.16)
All conditions		
Explicit statement, supportive bystanders	56	2.61 (1.30)
Explicit statement, nonsupportive bystanders	60	2.83 (1.44)
Explicit statement, no bystanders	55	3.47 (1.27)
Ambiguous statement, supportive bystanders	48	2.29 (1.18)
Ambiguous statement, nonsupportive bystanders	48	2.29 (1.17)
Ambiguous statement, no bystanders	45	3.04 (0.98)

Chapter 3

Results

Reliability Coding

Reliability of response coding had two phases consisting of two separate raters utilizing a small subset of items. Reliability coding initially completed utilizing a 20% sample yielded moderate levels of interrater reliability for primary responses (kappa statistic = 0.55, 62 % agreement, 95% CI = 0.38 – 0.72) and “almost perfect agreement” for expanded responses (kappa statistic = 0.87, 89% agreement, 95% CI = 0.76 – 0.99). In an effort to ensure that coding was as reliable as possible, a separate second rater was utilized and went through more extensive coder training utilizing the pilot data. Additional clarifications were made to the coding manual during this training, and this rater provided independent reliability coding on a 30% sample. The primary author also completely recoded all data based on changes to the coding manual that occurred during coder training. When coding, the primary author as well as the reliability coders coded each response on two separate occasions to ensure reliability within their own coding. Final interrater reliability for primary responses yielded a kappa statistic of 0.81 (86% agreement, 95% CI = 0.71 – 0.92), suggesting “almost perfect agreement.” Final interrater reliability for the expanded responses yielded a kappa statistic of 0.85 (88% agreement, 95% CI = 0.75 – 1.00), again suggesting “almost perfect agreement.” This indicates that the coding for participant responses is reliable across raters. See Table 3.1.

Prior Experience with a Suicidal Individual or an Individual in Crisis

Information was gathered regarding participants' prior experience with individuals experiencing a mental health crisis or suicidality. Regarding history of witnessing a concerning post on social media, 67.4% of participants reported that they have read a post on social media that made them concerned that the individual was experiencing a mental health crisis, and 57.5% reported that they have read a post on social media that made them concerned that the individual was suicidal. The vast majority (86%) of participants who have read social media posts that made them concerned that the individual was experiencing either a mental health crisis or suicidality reported reading such a post more than once. See Table 3.2 for more detailed information. Of participants who read a post on social media that made them concerned that an individual was experiencing a mental health crisis or suicidality, nearly half (49.8%) reported intervening in some manner, while the remainder exhibited either inconsistent responding (intervening in some instances but taking no action in others; 12.5%) or taking no action (7%). See Table 3.3 for more detailed information.

Regarding interactions outside of social media, 77.3% of participants reported that they have been concerned that an individual they know was experiencing a mental health crisis, and 65.4% reported being concerned that an individual they know was suicidal. As with social media encounters, the majority of participants reported encountering someone they know who they were concerned was in a mental health crisis (76.8%) or was suicidal (75.4%) more than once (see Table 3.2). Notably, nearly three-quarters (74.4%) of participants who reported being concerned for someone they knew experiencing a mental health crisis or suicidality reported intervening with that individual in some manner, with

only a few participants reporting inconsistent responding (2.6%) or no actions taken (2.2%) See Table 3.3 for more information.

Regarding personal history of mental health difficulties, 62% reported suffering from a mental health condition/illness at any point in their life and 54% reported receiving treatment for a mental health condition/illness. Regarding personal history of suicidality, 44.4% reported seriously considering attempting suicide at any point in their life and 20.8% reported attempting suicide at any point in their lives (see Table 3.4).

Perceptions of Post Severity and Perceptions of Bystanders

Participants were asked to rate how concerned they would be that the individual making the experimental statement in their condition was suicidal or experiencing a mental health crisis. This was assessed on five-point Likert scales, with higher scorers indicating higher concern. Participants reported high levels of concern for suicidality for both explicit ($M = 4.60, SD = .79$) and ambiguous statements ($M = 4.28, SD = .93$). Similarly, participants reported high levels of concern for a mental health crisis for both explicit ($M = 4.69, SD = .77$) and ambiguous statements ($M = 4.47, SD = .82$). These results can be found in Table 3.5. This indicates that participants accurately perceived the posts as being highly indicative of suicidality and/or a mental health crisis.

In bystander conditions, participants were asked how concerned the other people who saw the statement were that the individual was suicidal or experiencing a mental health crisis, also assessed on five-point Likert scales. In supportive bystander conditions, participants reported that the others who viewed the post appeared moderately concerned that the individual making the post was experiencing suicidality ($M = 3.81, SD = 1.43$) or a mental health crisis ($M = 3.89, SD = 1.09$). Conversely, in nonsupportive bystander

conditions, participants reported that the others who viewed the post appeared not very concerned that the individual making the post was experiencing suicidality ($M = 1.63$, $SD = 1.30$) or a mental health crisis ($M = 1.64$, $SD = 1.31$). These results can be found in Table 3.5. Taken together, these results indicate that participants were able to accurately observe the bystanders each condition as having the level of concern the author intended to communicate.

Overall Responding

Overall participant responses tended to reflect lower-quality intervention behaviors. Twenty-three percent (23.1%) of participants did not respond to the post at all, although they were able to accurately identify the post during the validity items. When including non-responders as the lowest-quality helping behavior, the overall mean of response quality was 2.77 ($SD = 1.31$), indicating low/limited responses. When considering only individuals who responded to the post, the overall mean of response quality was 3.31 ($SD = .99$), still indicating overall low-quality helping. The most frequently-assigned codes were threes (33.5%; indicating low-immediacy and low-helping responding) and fours (20.6%; indicating either high-immediacy and low-helping responding or low-immediacy and intermediate-helping responding). Very few responses received codes of five (3.5%) or six (3.5%), which represent higher-quality helping behaviors. Means and frequencies of response quality by experiment condition, discussed in further detail below, can be found in Tables 2.3 and 3.6, respectively.

Hypothesis Testing

The following section details analyses investigating the three study aims. A Bonferroni-corrected alpha value was utilized to control for experiment-wise error. Nine

comparisons were controlled for, yielding a critical p -value of .0056; this alpha was utilized to determine significance for all analyses in the place of the standard alpha value of .05. All effect sizes are interpreted using guidelines set forth by Cohen (1988).

Aim 1

The first aim of this study was to determine the impact of an explicit or ambiguous statement on bystander intervention for suicidality in a social media context. It was hypothesized that participants confronted with an explicit suicidal statement would be more likely to report intervention behaviors and would report higher-quality intervention behaviors than an ambiguous statement, regardless of the presence/absence of others.

First, a chi-square test of independence was conducted to examine the relationship between explicit and ambiguous suicidal disclosure conditions and whether participants responded or did not respond to the post. Results indicated that there were no significant differences between the conditions, $\chi^2(1, N = 312) = 1.81, p = .178$ (see Table 3.7). This indicates that participants in the explicit condition had comparable rates of responding to the suicidal statement to participants in the ambiguous condition. Indeed, 79% of participants in the explicit condition ($N = 136$) and 73% of participants in the ambiguous condition ($N = 103$) responded to the post. However, it is noted that the effect size for this analysis, utilizing Cramer's V , was small (.076).

Next, A one-way ANOVA was conducted to compare quality of responses between explicit and ambiguous conditions, regardless of bystander condition. Model assumptions were assessed; equality of variances was met and the residuals were observed to be approximately normally distributed. Results indicated that there was a

significant main effect, $F(1, 310) = 8.723, p = .003$, with participants in the explicit condition ($M = 2.96, SD = 1.38$) exhibiting significantly higher quality responses than participants in the ambiguous condition ($M = 2.53, SD = 1.16$). There was a small effect size (partial $\eta^2 = .027$). These results indicate that participants in the explicit condition tended to provide higher-quality responses than did participants in the ambiguous condition. More information can be found in Tables 2.2 and 3.8.

Taken together, it appears that the first hypothesis is partially supported. While there was no evidence that participants were more likely to respond to a post containing an explicitly suicidal statement overall, they were more likely to provide a higher-quality response to an explicitly suicidal statement than to an ambiguously suicidal statement. That being said, effect sizes were small for this finding. However, these results have not taken bystander conditions into account, which are investigated below.

Aim 2

The second aim of this study was to determine how the behavior of other bystanders impacts bystander intervention behaviors, particularly in the event of an ambiguous suicidal disclosure. As such, it was hypothesized that intervention behaviors of participants confronted with an ambiguous suicidal disclosure would vary based on the perceived presence and actions of bystanders, with participants more likely to intervene and reporting higher-quality intervention behaviors when 1) there were no bystanders and 2) when bystanders endorsed supportive intervention attitudes rather than nonsupportive attitudes.

First, a chi-square test of independence was conducted to examine the relationship between the three bystander conditions and whether participants responded or did not

respond to the post, regardless of explicit or ambiguous statements. Results indicated that there was a significant difference in responding between the conditions, $X^2(2, N = 312) = 22.36, p < .001$ (see Table 3.9). The effect size, as measured by Cramer's V , was medium (.268). A post hoc analysis was conducted to determine group differences. These results indicated that participants in the no bystander condition were significantly more likely to respond to the post than expected if the null hypothesis were true. In fact, 93% of participants in the no bystander condition responded to the post, compared to 67% of participants in the supportive bystander condition and 70% of participants in the nonsupportive bystander condition.

A two-way ANOVA was conducted to compare differences in the presence and quality of intervention responses for participants across explicit and ambiguous conditions and three bystander conditions, as well as to investigate interaction effects between the explicit/ambiguous nature of the suicidal message and bystander conditions. Model assumptions were assessed; equality of variances was met and the residuals were observed to be approximately normally distributed. Results indicate that there was a significant main effect for explicit/ambiguous conditions, $F(1, 306) = 9.127, p = .003$, with participants in the explicit conditions ($M = 2.96, SD = 1.38$) exhibiting significantly higher quality responses than participants in the ambiguous conditions ($M = 2.53, SD = 1.16$). The effect size was small (partial $\eta^2 = .029$). Additionally, there was a significant main effect found for bystander condition, $F(2, 306) = 12.461, p < .001$, with a medium effect size (partial $\eta^2 = .075$). Tukey's HSD post-hoc analyses were conducted to examine differences between conditions. Results revealed that participants in the no bystander condition ($M = 3.28, SD = 1.16$) provided significantly higher-quality

responses than participants in the supportive ($M = 2.46$, $SD = 1.25$, $p < .001$) and nonsupportive ($M = 2.59$, $SD = 1.35$; $p < .001$) bystander conditions. No significant differences were found between supportive and nonsupportive bystander conditions ($p = .724$). The interaction between explicit/ambiguous and bystander condition was not significant, $F(2, 306) = .216$, $p = .806$. More information can be found in Tables 2.3, 3.10, and 3.11.

Taking this information together, the second hypothesis was also partially supported. There was a significant difference in presence and quality of responses by bystander condition, with participants in the no bystander condition significantly more likely to respond to the suicidal post and providing significantly higher-quality responses than those in the supportive bystander and nonsupportive bystander conditions. Overall effect sizes related to the impact of bystander conditions were consistently medium. However, no significant interaction was observed, indicating that there were no differences in response quality between bystander groups based on the content (i.e., explicit or ambiguous) of the message. Additionally, there were no significant differences between response presence or quality between participants in supportive and nonsupportive bystander conditions.

Aim 3

The final aim of this study was to investigate the ways in which intrapersonal variables—specifically, PBC, gender, and prior experience with suicide intervention—impact bystander intervention behaviors. It was hypothesized that women, individuals with higher levels of PBC intervening with a peer experiencing suicidality, and

individuals with prior experience intervening with a peer experiencing suicidality would report more intervention behaviors as well as higher-quality intervention behaviors.

First, chi-square tests of independence were conducted to examine the relationship between gender and prior experience with suicide intervention and whether participants did or did not respond to the post. In the analysis assessing differences by gender (men/women), no significant differences were found in whether or not the participant responded between men and women, $X^2(1, N = 302) = 1.85, p = .667$; see Table 3.12. Similarly, no significant differences were found in response between individuals who reported no or any prior experience with suicide intervention, $X^2(1, N = 312) = 2.834, p = .092$; see Table 3.13.

A two-way ANOVA was conducted to address differences in quality of intervention behaviors by gender and any prior experience with suicide intervention. The model assumption of equal variances was met, although it is noted that the residuals did not appear to be normally distributed. As such, caution in interpreting results is indicated. There was a significant main effect for intervention history, $F(1, 298) = 11.729, p = .001$, with participants who reported any prior history of intervening with a peer experiencing suicidality exhibiting significantly higher quality responses ($M = 2.91, SD = 1.32$) than those who did not report such a history ($M = 2.26; SD = 1.05$). There was a small-to-medium effect size (partial $\eta^2 = .038$). There were no significant differences found in intervention quality between men and women, $F(1, 271) = .004, p = .583$. For more information, see Tables 3.2, 3.14, and 3.15.

Pearson correlations were conducted to assess the relationship between PBC and presence and quality of response to the suicidal post. PBC and whether or not the

participant responded to the suicidal post were found to be significantly positively correlated, $r(301) = .165, p = .004$. This indicates that as group membership of response increased (i.e., moved from no response to response), PBC levels of participants were observed to increase. Similarly, there was a significant positive correlation found between PBC and quality of the intervention response, $r(301) = .270, p < .001$, indicating that as perceptions of behavioral control increased, the quality of the intervention response increased as well. That being said, that the strength of these relationships was low. See Table 3.16.

Taken together, there is a clear lack of support for the hypothesis that women exhibit more and higher-quality responses to the suicidal post and mixed support for the impact of prior history intervening with a peer. While there were no differences in responding versus not responding to the suicidal post between those with and without a history of intervention with a peer experiencing suicidality, there was evidence that those with such a history provided significantly higher-quality responses than those without. However, there is support for the hypothesis that PBC is related to responses to suicidal posts, as higher levels of PBC were associated with greater levels of responding and higher-quality intervention responses.

An ANCOVA was calculated to determine if the significant effects observed while investigating Aims 1 and 2 remained significant when controlling for prior experience with suicide intervention and PBC. Gender was not included in this analysis, as no significant group differences were found. Model assumptions were assessed; equality of variances and homogeneity of regression slopes were met and the residuals were observed to be normally distributed. Significant main effects for bystander

condition remained significant after controlling for the additional variables, $F(2, 290) = 7.626, p = .001$, with estimated marginal means indicating that individuals in the no bystander condition exhibited higher-quality responses ($M = 3.10$) than those in the supportive ($M = 2.29$) and nonsupportive ($M = 2.43$) bystander conditions when controlling for PBC. The effect size was approximately medium (partial $\eta^2 = .050$). Notably, main effects for the explicit/ambiguous conditions no longer met criteria for significance after controlling for the additional variables, $F(1, 290) = 3.885, p = .050$, especially when considering the Bonferroni-corrected alpha value (.0056). Additionally, main effects for prior experience with suicide intervention was no longer significant when considering the Bonferroni-corrected alpha, $F(1, 290) = 7.057, p = .008$. All interactions failed to reach significance. For more information, see Table 3.17.

Analyses Examining Expanded Responses

The aforementioned analyses investigated the primary response that all participants were required to provide if they indicated they would respond to the post. However, 191 (61%) of participants also provided a response to the optional follow-up item asking if they would do anything else in response to the post. Some of the above analyses were replicated to determine if hypotheses continued to be supported when considering these expanded responses. However, readers are encouraged to more highly attend to the results detailing primary responses, as all participants who indicated they would respond to the experimental post provided these responses. A Bonferroni-corrected alpha level was calculated to account for these additional analyses ($p = .0042$); this alpha was utilized to determine significance for all analyses in the place of the standard alpha value of .05.

There was a slight increase in response quality in expanded responses. When including non-responders as the lowest-quality helping behavior, the overall mean of response quality was 3.28 ($SD = 1.67$), compared to the primary response mean of 2.77 ($SD = 1.31$). When considering only individuals who responded to the post, the overall mean of response quality was 3.97 ($SD = 1.26$), compared to the primary response mean of 3.31 ($SD = .99$). As with the primary responses, the most frequently-assigned codes were threes (27.5%) and fours (20.9%). There was an observed increase in codes of five (6%) and six (15.5%), each increased from 3.5% for primary responses. Means and frequencies of response quality by experiment condition can be found in Tables 3.18 and 3.19.

The two-way ANOVA assessing differences in the presence and quality of intervention responses for participants across explicit and ambiguous conditions and three bystander conditions was replicated utilizing expanded responses. Model assumptions were assessed; although residuals appeared to be approximately normally distributed, it is noted that the assumption of equal variances was not met (based on mean, $p = .016$), and results should be interpreted with caution. Just as in the earlier analyses, there was a significant main effect for explicit/ambiguous conditions, $F(1, 306) = 21.904, p < .001$, with participants in the explicit conditions ($M = 3.64, SD = 1.80$) exhibiting significantly higher quality responses than participants in the ambiguous conditions ($M = 2.84, SD = 1.37$). Notably, there was a medium effect size in this analysis (partial $\eta^2 = .067$). Similarly, there remained a significant main effect found for bystander condition, $F(2, 306) = 20.249, p < .001$, with a medium-to-large effect size (partial $\eta^2 = .117$). Tukey's HSD post-hoc analyses revealed consistent results to the analyses of the primary

responses; participants in the no bystander condition ($M = 4.10$, $SD = 1.51$) provided significantly higher-quality responses than participants in the supportive ($M = 2.89$, $SD = 1.62$; $p < .001$) and nonsupportive ($M = 2.90$, $SD = 1.58$; $p < .001$) bystander conditions. No significant differences were found between supportive and nonsupportive bystander conditions ($p = 1.00$). The interaction between explicit/ambiguous and bystander condition continued not to reach significance, $F(2, 306) = .389$, $p = .678$. For more information, see Tables 3.20 and 3.21.

The two-way ANOVA investigating differences in quality of intervention behaviors by gender (men/women) and any prior experience with suicide intervention was replicated, as well as the Pearson correlation investigating the relationship between PBC and response quality. The model assumption of equal variances was met, but again it is noted that the residuals did not appear to be normally distributed and caution is indicated. As in the analyses for primary responses, there was a significant main effect for intervention history, $F(1, 298) = 9.125$, $p = .003$, with participants indicating any prior history of intervening with a peer experiencing suicidality exhibiting significantly higher quality responses ($M = 3.43$; $SD = 1.65$) than those who did not report such a history ($M = 2.65$; $SD = 1.52$). There was a small effect size (partial $\eta^2 = .030$). Again, there were no significant differences found in intervention quality between men and women, $F(1, 298) = .511$, $p = .475$. See Tables 3.22 and 3.23. Similarly, there continued to be a significant (albeit low strength) positive correlation found between PBC and quality of the intervention in expanded responses, $r(301) = .287$, $p < .001$. See Table 3.24.

Finally, the ANCOVA determining if the significant effects observed while investigating Aims 1 and 2 remained significant when controlling for prior experience with suicide intervention and PBC was replicated. Model assumptions were assessed. Homogeneity of regression slopes was met and the residuals were observed to be normally distributed; however, it is noted that equality of error variances was questionable ($p = .018$) and caution is suggested. As in the primary response analyses, significant main effects for bystander condition remained significant after controlling for the additional variables, $F(2, 290) = 11.814, p < .001$, with estimated marginal means indicating that individuals in the no bystander condition exhibited higher-quality responses ($M = 3.87$) than those in the supportive ($M = 2.77$) and nonsupportive ($M = 2.68$) bystander conditions when controlling for PBC. The effect size was medium (partial $\eta^2 = .075$). Main effects for the explicit/ambiguous condition also met criteria for significance after controlling for the additional variables, $F(1, 290) = 11.690, p = .001$, with estimated marginal means showing that those in the explicit condition ($M = 3.48$) exhibited higher-quality responses than those in the ambiguous condition ($M = 2.73$) when controlling for PBC. A small effect size was observed (partial $\eta^2 = .039$). As in prior analyses, the main effects for prior experience with suicide intervention were no longer significant in this analysis when utilizing the Bonferroni-corrected alpha value ($p = .0042$), $F(1, 290) = 5.729, p = .017$. All interactions failed to reach significance. For more information, see Table 3.25.

Table 3.1 Interrater reliability coding for initial and secondary reliability coding

Reliability coder	Kappa statistic	Percent agreement	95% confidence interval
Initial reliability coder (20% subset)			
Primary responses	.55	62	0.38 – 0.72
Expanded responses	.87	89	0.76 – 0.99
Second reliability coder (30% subset)			
Primary responses	.81	86	0.71 – 0.92
Expanded responses	.85	88	0.75 – 1.00

Note. To ensure that coding was as reliable as possible, a second coder was utilized following the initial reliability coding. This coder went through more intensive coder training utilizing pilot data and additional clarifications were made to the coding manual. The primary author completely re-coded all responses following these clarifications made to the manual.

Table 3.2 History and number of times encountered another individual was experiencing a mental health crisis or suicidality through social media or real life

	Any occasion		Number of occasions				
	Yes <i>N</i> (%)	No <i>N</i> (%)	1 <i>N</i> (%)	2-5 <i>N</i> (%)	6-10 <i>N</i> (%)	10-15 <i>N</i> (%)	16+ <i>N</i> (%)
Concerned person on social media was experiencing a mental health crisis	211 (67.4%)	102 (32.6%)	30 (14.2%)	132 (63.6%)	33 (15.6%)	3 (1.4%)	13 (6.2%)
Concerned person on social media was suicidal	180 (57.5%)	133 (42.5%)	26 (14.4%)	113 (62.8%)	28 (15.6%)	5 (2.8%)	8 (4.4%)
Concerned person you know was experiencing a mental health crisis	242 (77.3%)	71 (22.7%)	56 (23.1%)	121 (50.0%)	37 (15.3%)	17 (7.0%)	11 (4.5%)
Concerned person you know was suicidal	204 (65.2%)	108 (34.5%)	50 (24.6%)	107 (52.7%)	26 (12.8%)	14 (6.9%)	6 (3.0%)

Table 3.3 History of intervention with individual in mental health crisis or suicidal on or outside of social media

	Social media	Outside social media	Any intervention
	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>
Never encountered individual in mental health crisis or suicidal	96 (30.7%)	65 (20.8%)	58 (19%)
No intervention with individual in crisis or suicidal	22 (7.0%)	7 (2.2%)	
Inconsistent intervention with individual in crisis or suicidal	39 (12.5%)	8 (2.6%)	244 (81%)
Any intervention with individual in crisis or suicidal	156 (49.8%)	233 (74.4%)	

Table 3.4 Personal history of mental health conditions or suicidality

	Yes	No	Unsure/prefer not to answer
	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>
Suffered from a mental health condition/illness	194 (62.0%)	88 (28.1%)	31 (9.9%)
Received treatment for a mental health condition/illness	169 (54.0%)	139 (44.4%)	5 (1.6%)
Seriously considered suicide	139 (44.4%)	157 (50.2%)	17 (5.4%)
Attempted suicide	65 (20.8%)	239 (76.4%)	9 (2.9%)

Table 3.5 Level of concern and perception of bystanders' concern that the individual making the post was experiencing suicidality or a mental health crisis

	Self concern suicidality	Self concern mental health crisis	Bystander concern suicidality	Bystander concern mental health crisis
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<u>Post severity conditions</u>				
Explicit	4.60 (.79)	4.69 (.77)	—	—
Ambiguous	4.28 (.93)	4.47 (.82)	—	—
<u>Bystander conditions</u>				
Supportive	4.33 (.95)	4.45 (.94)	3.81 (1.04)	3.89 (1.09)
Nonsupportive	4.34 (.95)	4.55 (.84)	1.63 (1.30)	1.64 (1.31)
No bystanders	4.71 (.62)	4.78 (.50)	—	—

Table 3.6 Frequency of response codes overall and by condition

Condition	Code+					
	1 <i>N</i> (%)	2 <i>N</i> (%)	3 <i>N</i> (%)	4 <i>N</i> (%)	5 <i>N</i> (%)	6 <i>N</i> (%)
Total	73 (23.1%)	46 (14.6%)	106 (33.5%)	65 (20.6%)	11 (3.5%)	11 (3.5%)
Explicit statement, supportive bystanders	16 (28.6%)	6 (10.7%)	24 (42.9%)	6 (10.7%)	2 (3.6%)	2 (3.6%)
Explicit statement, nonsupportive bystanders	16 (26.7%)	7 (11.7%)	17 (28.3%)	14 (23.3%)	3 (5.0%)	3 (5.0%)
Explicit statement, no bystanders	3 (5.5%)	7 (12.7%)	21 (38.2%)	15 (27.3%)	3 (5.5%)	6 (10.9%)
Ambiguous statement, supportive bystanders	18 (37.5%)	7 (14.6%)	15 (31.3%)	7 (14.6%)	1 (2.1%)	0 (0.0%)
Ambiguous statement, nonsupportive bystanders	16 (33.3%)	12 (25.0%)	11 (22.9%)	8 (16.7%)	1 (2.1%)	0 (0.0%)
Ambiguous statement, no bystanders	4 (8.9%)	7 (15.6%)	18 (40.0%)	15 (33.3%)	1 (2.2%)	0 (0.0%)

+ 1: no response; 2: low/limited response; 3: low immediacy/low helping; 4: high immediacy/low helping OR low immediacy/intermediate helping; 5: high immediacy/intermediate helping OR low immediacy/high helping; 6: high immediacy/high helping

Table 3.7 Chi Square investigating the relationship between explicit and ambiguous statement and response to the post

Condition	Did not respond to post	Responded to post
	<i>N</i> (%)	<i>N</i> (%)
Explicit statement	35 (21%)	136 (79%)
Ambiguous statement	38 (27%)	103 (73%)

$X^2(1, N = 312) = 1.81, p = .178$; Cramer's $V = 0.76$

Table 3.8 One-way ANOVA comparing quality of responses between explicit and ambiguous conditions

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
Between groups	14.489	1	14.489	8.723	.003	.003
Within groups	514.896	310	1.661			
Total	529.385	311				

Table 3.9 Chi Square investigating the relationship between bystander conditions and response to the post

Condition	Did not respond to post	Responded to post
	<i>N</i> (%)	<i>N</i> (%)
Supportive bystanders	34 (33%)	70 (67%)
Nonsupportive bystanders	32 (30%)	76 (70%)
No bystanders	7 (7%)	93 (93%)

$X^2(2, N = 312) = 22.36, p < .001$; Cramer's $V = .268$

Table 3.10 Two-way ANOVA results comparing response quality by explicit/ambiguous and bystander conditions

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
(Intercept)	2346.629	1	2346.629	1511.265	.000	.832
Explicit/ambiguous	14.172	1	14.172	9.127	.003	.029
Bystander conditions	38.697	2	19.349	12.461	.000	.075
Interaction	.672	2	.336	.216	.806	.001
Error	475.144	306	1.553			

Table 3.11 Tukey HSD post hoc comparisons for response quality by bystander condition

Comparison		Mean difference	Standard error	<i>df</i>	<i>p</i>
Condition	Condition				
No bystander	Supportive	.82	.175	2	.000
	Nonsupportive	.69	.173	2	.000
Supportive	No bystander	-.82	.175	2	.000
	Nonsupportive	-.13	.171	2	.724

Table 3.12 Chi Square investigating the relationship between gender and response to the post

Gender	Did not respond to post	Responded to post
	<i>N</i> (%)	<i>N</i> (%)
Males	22 (24%)	68 (75%)
Females	47 (22%)	165 (78%)

$X^2(1, N = 302) = 1.85, p = .667$

Table 3.13 Chi Square investigating the relationship between prior history of intervention with a peer experiencing suicidality or a mental health crisis and response to the post

Prior history	Did not respond to post	Responded to post
	<i>N</i> (%)	<i>N</i> (%)
No history of intervention	19 (32%)	41 (68%)
Any history of intervention	54 (21%)	198 (79%)

$\chi^2(1, N = 312) = 2.834, p = .092$

Table 3.14 Two-way ANOVA results comparing response quality by gender and prior history of intervention with a peer experiencing suicidality or a mental health crisis

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
(Intercept)	1159.998	1	1159.998	709.102	.000	.704
Prior intervention	19.188	1	19.188	11.729	.001	.038
Gender	.495	1	.495	.303	.583	.001
Interaction	.006	1	.006	.004	.952	.000
Error	487.489	298	1.636			

Table 3.15 Response quality by gender and prior history of intervention with a peer experiencing suicidality or a mental health crisis

	Gender	<i>N</i>	Average response quality code
			<i>M</i> (<i>SD</i>)
Males		90	2.83 (1.31)
Females		212	2.77 (1.30)
	Prior history		
No prior intervention		58	2.22 (1.05)
Any prior intervention		244	2.90 (1.33)

Table 3.16 Correlations assessing the relationship between PBC and presence and quality of response to the suicidal post

Variable	1	2
1. Response rate	—	.165**
2. Total PBC	.165**	—
1. Response quality	—	.270**
2. Total PBC	.270**	—

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

Table 3.17 ANCOVA results comparing response quality comparing response quality by explicit/ambiguous and bystander conditions when controlling prior history of suicide intervention and PBC

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
(Intercept)	13.020	1	13.020	9.007	.003	.030
1. PBC	15.649	1	15.649	10.825	.001	.036
2. Explicit/ambiguous	5.617	1	5.617	3.885	.050	.013
3. Bystander conditions	22.048	2	11.024	7.626	.001	.050
4. Prior intervention	10.202	1	10.202	7.057	.008	.024
2*3 interaction	1.478	2	.739	.511	.600	.004
2*4 interaction	.220	1	.220	.152	.697	.001
3*4 interaction	.877	2	.438	.303	.739	.002
2*3*4 interaction	5.425	2	2.713	1.876	.155	.013
Error	419.221	290	1.446			

Table 3.18 Mean response quality within and across conditions for expanded responses

	<i>N</i>	Average response quality code
		<i>M (SD)</i>
Post severity conditions		
Explicit statement	171	3.64 (1.80)
Ambiguous statement	141	2.83 (1.36)
Bystander conditions		
Supportive bystanders	104	2.89 (1.62)
Nonsupportive bystanders	108	2.90 (1.58)
No bystanders	100	4.10 (1.51)
All conditions		
Explicit statement, supportive bystanders	56	3.23 (1.78)
Explicit statement, nonsupportive bystanders	60	3.20 (1.76)
Explicit statement, no bystanders	55	4.56 (1.52)
Ambiguous statement, supportive bystanders	48	2.50 (1.32)
Ambiguous statement, nonsupportive bystanders	48	2.52 (1.23)
Ambiguous statement, no bystanders	45	3.53 (1.31)

Table 3.19 Frequency of response codes overall and by condition for expanded responses

Condition	Code+					
	1 <i>N</i> (%)	2 <i>N</i> (%)	3 <i>N</i> (%)	4 <i>N</i> (%)	5 <i>N</i> (%)	6 <i>N</i> (%)
Total	73 (23.1%)	19 (6.0%)	87 (27.5%)	66 (20.9%)	19 (6.0%)	49 (15.5%)
Explicit statement, supportive bystanders	16 (28.6%)	2 (3.6%)	15 (26.8%)	8 (13.3%)	6 (10.7%)	9 (16.1%)
Explicit statement, nonsupportive bystanders	16 (26.7%)	4 (6.7%)	16 (26.7%)	11 (18.3%)	2 (3.3%)	11 (18.3%)
Explicit statement, no bystanders	3 (5.5%)	1 (1.8%)	11 (20.0%)	11 (20.0%)	5 (9.1%)	24 (43.6%)
Ambiguous statement, supportive bystanders	18 (37.5%)	1 (2.1%)	19 (39.6%)	8 (16.7%)	1 (2.1%)	1 (2.1%)
Ambiguous statement, nonsupportive bystanders	16 (33.3%)	7 (14.6%)	13 (27.1%)	12 (25.0%)	1 (2.1%)	0 (0.0%)
Ambiguous statement, no bystanders	4 (8.9%)	4 (8.9%)	13 (28.9%)	16 (35.6%)	4 (8.9%)	4 (8.9%)

+ 1: no response; 2: low/limited response; 3: low immediacy/low helping; 4: high immediacy/low helping OR low immediacy/intermediate helping; 5: high immediacy/intermediate helping OR low immediacy/high helping; 6: high immediacy/high helping

Table 3.20 Two-way ANOVA results comparing response quality by explicit/ambiguous and bystander conditions for expanded responses

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
(Intercept)	3278.031	1	3278.031	1404.303	.000	.821
Explicit/ ambiguous	51.130	1	51.130	21.904	.000	.067
Bystander conditions	94.533	2	47.266	20.249	.000	.117
Interaction	1.814	2	.907	.389	.678	.003
Error	475.144	306	1.553			

Table 3.21 Tukey HSD post hoc comparisons for response quality by bystander condition for expanded responses

Comparison		Mean difference	Standard error	df	p
Condition	Condition				
No bystander	Supportive	1.21	.213	2	.000
	Nonsupportive	1.20	.212	2	.000
Supportive	No bystander	-1.21	.213	2	.000
	Nonsupportive	-.004	.210	2	1.00

Table 3.22 Two-way ANOVA results comparing response quality by gender and prior history of intervention with a peer experiencing suicidality or a mental health crisis for expanded responses

Predictor	Sum of Squares	df	Mean Square	F	p	partial η^2
(Intercept)	1631.696	1	1631.696	614.547	.000	.673
Prior intervention	24.228	1	24.228	9.125	.003	.030
Gender	3.953	1	3.953	1.489	.223	.005
Interaction	1.356	1	1.356	.511	.475	.002
Error	791.226	298	2.655			

Table 3.23 Response quality by gender and prior history of intervention with a peer experiencing suicidality or a mental health crisis for expanded responses

	Gender	N	Average response quality code
			M (SD)
Males		90	3.39 (1.77)
Females		212	3.25 (1.61)
	Prior history		
No prior intervention		58	2.66 (1.51)
Any prior intervention		244	3.43 (1.65)

Table 3.24 Correlations assessing the relationship between PBC and quality of response to the suicidal post for expanded responses

Variable	1	2
1. Response quality	—	.287**
2. Total PBC	.287**	—

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

Table 3.25 ANCOVA results comparing response quality comparing response quality by explicit/ambiguous and bystander conditions when controlling prior history of suicide intervention and PBC for expanded responses

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	partial η^2
(Intercept)	17.530	1	17.530	7.957	.005	.027
1. PBC	23.350	1	23.350	10.599	.001	.035
2. Explicit/ambiguous	25.754	1	25.754	11.690	.001	.039
3. Bystander conditions	52.056	2	26.028	11.814	.000	.075
4. Prior intervention	12.622	1	12.622	5.729	.017	.019
2*3 interaction	2.181	2	1.090	.495	.610	.003
2*4 interaction	.078	1	.078	.035	.851	.000
3*4 interaction	1.137	2	.569	.258	.773	.002
2*3*4 interaction	4.869	2	2.434	1.105	.333	.008
Error	638.906	290	2.203			

Chapter 4

Discussion

The purpose of this study was to examine the impact of the bystander effect on peer intervention behaviors when confronted with suicidal disclosures on social media/networking websites, as well as the impact of the explicit or ambiguous nature of the statement on the bystander effect and intervention behavior. Three hypotheses were investigated: 1) that participants confronted with an explicit suicidal disclosure would be more likely to report intervention behaviors and would report higher-quality intervention behaviors than an ambiguous disclosure; 2) that when presented with an ambiguous suicidal disclosure, participants would be more likely to intervene and would report higher-quality intervention behaviors when there were no bystanders or supportive bystanders; and 3) that women, individuals with higher levels of PBC intervening with a suicidal peer, and individuals with prior experience intervening with a suicidal peer would report more intervention behaviors as well as higher-quality intervention behaviors.

The results of this study provide partial support for these hypotheses. There is evidence that participants are more likely to provide higher-quality response to an explicitly suicidal statement than to an ambiguously suicidal statement. Similarly, although there were no differences in overall responding or response quality between supportive and nonsupportive bystander conditions, there was consistently a significant difference between the no bystander and bystander conditions, with individuals in the no

bystander condition being significantly more likely to respond and providing higher-quality responses to the suicidal post than participants in the other two bystander conditions. As there was not a significant interaction observed between explicit/ambiguous statements and bystander condition, it appears that these two effects are separate from and do not vary based on each other, in contradiction to the second hypothesis. Finally, higher levels of PBC were (somewhat weakly) associated with participants being more likely to respond and providing higher-quality responses to the post. Notably, the differences in responding between bystander conditions remained when controlling for prior history and PBC, whereas differences in response between explicit/ambiguous conditions and those with or without prior experience intervening with a peer experiencing suicidality did not. All of the aforementioned results remained significant during analyses investigating response quality in expanded responses, which provides additional support for the results. These results and their implications will be discussed in greater detail below.

Regarding presence and quality of intervention behaviors based on explicit or ambiguous suicidal statements, there was some evidence that participants tended to provide higher-quality responses to explicitly suicidal statements. Thus, while there is no evidence in this study that participants were less likely to intervene at all in the presence of an ambiguous disclosure, they tended to provide lower-quality intervention behaviors. This finding aligns with earlier work demonstrating higher-quality intervention behaviors in the face of more explicitly suicidal statements (Kalafat et al., 1993; Kalafat & Gagliano, 1996), although it is in contradiction to results within the bystander intervention literature that suggest that individuals are less likely to respond to ambiguous

situations at all (e.g., Labhardt et al., 2017; Brody & Vangelisti, 2016), including in situations with potentially suicidal peers (Corbitt-Hall et al., 2016; 2018; Chang et al., 2018). Rather, this finding indicates that participants were able to perceive the post as indicative of a situation in need of intervention and were willing to intervene in some capacity but saw less of a need for significant intervention. This is a meaningful finding, because individuals may be more likely to encounter ambiguously suicidal posts on social networking websites rather than explicitly suicidal posts. Individuals who made ambiguous or vague suicidal posts on social networking websites may possess the same severity of suicidality as do those posting explicitly suicidal statements, but may be less likely to receive high-quality intervention (i.e., connection with suicide prevention resources, contacting emergency services).

There was consistent evidence that participants confronted with a suicidal disclosure made in the context of no bystanders (i.e., in a private message) were more likely to respond and provided higher-quality responses; effect sizes were typically in the medium range. This suggests that the diffusion of responsibility phenomenon that is fundamental to the understanding of the bystander effect (Darley & Latané, 1968; Latané & Darley, 1970) is present in peer intervention of suicidal disclosures on social networking websites. This finding mirrors earlier work that suggested a bystander effect in peer intervention for suicidal disclosures outside of social networking websites (Kalafat et al., 1993). Additionally, this is a particularly noteworthy finding given that this study appears to be the first to investigate the presence of the bystander effect on peer intervention with suicidal disclosures on social networking websites. This constitutes the

first piece of evidence that the bystander effect exists to some extent in this context and lays the groundwork for future research in this area, which will be discussed later.

This finding is also meaningful when considering the fact that social media consists entirely of bystanders. Although the bystanders are not physically present in the same manner as in face-to-face interactions, the evidence of bystanders can be observed through the manner in which others interact with online content (e.g., “liking” or commenting on content). These results provide evidence that bystanders do not have to be physically present to exert a bystander effect on peer interventions for suicidal behaviors online. It is also noteworthy to consider that the majority of interactions on social networking websites do not exist in the context of private messages (i.e., no bystanders) but rather in public contexts, such as posts or sharing of content on “walls” or pages that can be seen by a large number of people. As such, posts that might indicate a need for intervention for suicidal behavior may not receive high-quality intervention (or any intervention at all, for that matter) due to the bystander effect.

Continuing on with the observation of the bystander effect, it is important to note that there was no difference in presence or quality of intervention behaviors between the supportive and nonsupportive bystander conditions, even in the presence of ambiguous disclosures, as was hypothesized. Put differently, participants were no more likely to provide support in the context of supportive bystanders or to remain passive in the context of nonsupportive bystanders. This is a noteworthy finding, as a common factor within the bystander effect literature is that in ambiguous situations individuals are more likely to look to the behaviors of others to guide their own responses (Latané & Darley, 1970; Latané & Nida, 1981). This is in contradiction to work conducted by Kalafat and

colleagues (1993), who found that responses to vignettes depicting a suicidal peer varied based on ambiguity and presence of others depicted in the vignette, although the differences between Kalafat and colleagues' (1993) study and the present one should be noted.

This lack of differences in responding between supportive and nonsupportive bystander conditions could have several explanations. One explanation could be that the phenomenon of relying on the actions of others to guide our behavior in ambiguous situations may not be present in the event of suicidal disclosures on social networking websites; it is recommended that more research into this phenomenon be conducted before this conclusion is drawn. Another explanation could be that this finding is related to the content of the “commenters” within this study. Supportive comments specifically consisted of helpful or kind statements (e.g., “please don’t—life is so important”) with no indication of providing intervention for the individual who made the post so as not to promote inaction through the assumption that the individual had already received intervention. While results indicated that participants perceived these bystanders as being concerned for the individual, participants might not have viewed these comments as means to guide their own behavior. Similarly, nonsupportive comments consisted of negative comments (e.g., “ugh. Who cares?”); again, while participants perceived these bystanders as not being concerned for the individual they might not have viewed these comments as means to guide their own attitudes or behavior. Finally, it is noted that the bystander effect is the strongest in non-emergency situations (Fischer et al., 2011) and it is possible that, given the nature of the content posted, participants perceived this situation to be an emergency.

Finally, this study investigated other variables that are thought to impact intervention behaviors, including gender, prior history with suicide intervention, and PBC. There were no significant differences in intervention behaviors between men and women. Although the literature suggests that women possess qualities that may result in greater intervention behaviors for peer suicidality, such as more positive attitudes towards referral behaviors (Kalafat et al., 1993; Raviv et al., 2000), greater intentions to intervene (Mason et al., 2015), and greater crisis response skills (Pasco et al., 2012), it is noted that no gender differences were found in original studies of bystander intervention (Darley & Latané, 1968) and gender differences within the bystander literature have been shown to vary based on context. As such, this finding is not particularly surprising. Rather, this finding can be used to highlight the notion that even behaviors thought to be indicative of responding to a suicidal peer such as positive attitudes and higher intentions to intervene may not result in actual differences in intervention behaviors.

On the other hand, there was some initial evidence that individuals with prior experience intervening with a peer experiencing a mental health crisis or suicidality, although not more likely to respond to the post in general, were more likely to report higher-quality intervention behaviors (it is noted that effect sizes were small). That being said, this effect no longer reached significance in analyses including bystander and explicit/ambiguous condition variables and controlling for PBC. This is a particularly interesting finding given the previous work suggesting that individuals who have prior experience with intervening with a suicidal individual are more likely to do so in the future (Aldrich, 2015; Cross et al., 2011; Wyman et al., 2008), including interventions specific to social media (Corbitt-Hall et al., 2018). Taken together, the findings of this

study suggest that prior experience intervening with a peer in crisis may not be the most relevant or influential factor associated with subsequent intervention behaviors. Indeed, given that participants in no-bystander conditions remained significantly more likely to provide higher-quality intervention behaviors even when controlling for prior history of intervention, it appears as if the presence or absence of bystanders is a much more relevant factor in intervention behavior than previous experience with intervention with a peer in distress.

PBC intervening with a suicidal peer was related to responding to the suicidal post and higher-quality intervention behaviors. This indicates that individuals who believe that they have the necessary skills, knowledge, and capability to intervene with a suicidal peer are more likely to respond and respond with higher-quality interventions. This is in keeping with the long history of research depicting the relationship between PBC, intentions to intervene, and intervention behavior with a suicidal peer (Aldrich, 2015; Cimini et al., 2014; Deane et al., 2006; Foster et al., 2017; Kuhlman et al., 2017; Mason et al., 2015; Rosetto et al., 2016). It should be noted that participants in no-bystander conditions remained significantly more likely to provide higher-quality intervention behaviors even when controlling for PBC, indicating that both the social context of the suicidal disclosure (i.e., made to a single individual versus in the presence of many individuals) as well as the individual's confidence in intervening with a suicidal peer impact intervention behaviors.

Finally, it is important to observe that the overall quality of intervention behaviors described by participants was low. Although the majority (76.9%) of participants reported that they would respond to the suicidal post in some manner, the responses they

provided tended to reflect interventions that were unlikely to result in immediate assistance as well as low levels of overall helpfulness to the individual experiencing suicidality. For primary responses, only a very small percentage of participants reported that they would seek professional support or formal resources outside of themselves to assist the individual experiencing suicide, with most individuals indicating that they would talk to, check in on, or in some other way intervene with the individual themselves. Although a consideration of expanded responses revealed a slight increase in intervention quality, including an increase in high-quality helping behaviors (an increase from 3.5% to 15.5% for the highest-quality helping behaviors), the majority of participants still described low to moderate quality intervention behaviors. Interestingly, this is similar to results observed by Fu and colleagues (2013). This observation of generally low-quality intervention behaviors is particularly concerning given the vital role that peers serve as gatekeepers serve for individuals experiencing suicidality. These peers have the important opportunity to connect individuals experiencing suicidality with the formal help they need, and yet these results suggest that the majority choose not to engage in this behavior.

Implications for Research

This is only the second known study to investigate the impact of the bystander effect on peer-to-peer interventions for suicidality and the first known study to investigate this phenomenon in the context of social networking interactions. Although online interactions have been heavily researched in the context of cyberbullying, there is very limited research on how these interactions impact suicidality. However, adolescents and young adults heavily utilize online resources, and a greater understanding of how these

interactions impact suicidality and intervention is essential. This study represents an initial step into this greater understanding.

More research is needed into the decision-making process surrounding responding versus not responding to a suicidal disclosure on social networking websites. This study provides evidence that the absence of bystanders factors heavily into this decision-making process, but there are likely other variables that impact this choice. Mixed-methods research that rely both on experimental control as well as qualitative aspects such as direct interviews with participants may be an excellent way of learning more about the factors that impact an individual's ability to respond or not respond to suicidal disclosures. This can also provide increased insight regarding how individuals' responses and intervention behaviors might change beyond their initial response (i.e., as more information is gathered or they learn more about their peer's situation). As was observed in the expanded responses to this study, there is a slight increase in quality of intervention behavior when the individual is allowed to elaborate on their response, and thought and decision-making processes involved in this should be investigated more thoroughly.

Similar mixed-methods designs could also provide additional insight into participants' perceptions of bystanders on social networking websites. This can guide understanding related to whether true diffusion of responsibility occurs (i.e., participants elect not to intervene due to the perception that others will or have already intervened) or if there are other factors that impact perception of and response to bystanders. This can also provide insight into this study's finding that—in contradiction to hypothesis as well as previous literature—participants do not look to the behaviors of others to guide responding in more ambiguous situations. Understanding how participants perceive

bystanders in social networking contexts can help determine if there is something unique to observing bystander behaviors via the internet versus in the context of suicidal disclosures.

Improvements to suicide prevention and intervention is the ultimate and most useful goal of this line of research. Specific ways that these findings can impact suicide prevention efforts are discussed below. Future research is needed to determine if suicide prevention efforts—particularly gatekeeper training programs—are effective in improving the quality of peer intervention behaviors in the context of disclosures made on social networking websites. Studies such as these can be implemented in a pre-post format wherein participants receive peer gatekeeper training and other suicide prevention training efforts that specifically include information related to interventions made via social networking websites. A hopeful finding would be that involvement in these training programs promotes more immediate and high-quality intervention behaviors and decreases the observation of the bystander effect on intervention behaviors.

The format of this study can also be utilized in a manner that helps evaluate the effectiveness of gatekeeper training programs in general. Researchers investigating effectiveness of gatekeeper training are often faced with a barrier of participants not encountering a suicidal peer within the follow-up time period; as such, no evidence of behavior change occurring in real life can be observed, which limits the power of the conclusions drawn regarding program effectiveness. Utilizing this mock social media format can be a way to provide a measure of the ability to engage in actual intervention behavior and determine if behavior change actually occurred following gatekeeper training, providing an additional measure of gatekeeper training effectiveness. This

format could also assist in adding real-life barriers to intervention, such as the presence of bystanders and variability in the closeness of the relationship with the individual in need of intervention.

Implications for Suicide Prevention

This study speaks to the importance of gatekeeper trainings for peer interventions for suicidal behavior. While the majority of participants responded to the post in some manner, the responses tended to be low-quality, usually consisting of reaching out to the individual in a low- immediacy context (e.g., through the social networking website) and with a low- or intermediate-quality intervention behavior (e.g., checking in with the individual, talking to them) rather than immediately seeking help for the individual. Given the importance of PBC/self-efficacy on intervention behaviors, these gatekeeper trainings are necessary to assist individuals to build confidence and a sense of perceived control in their ability to seek help for a peer experiencing suicidality. Improving overall knowledge of and attitudes towards more formal sources of help for a peer experiencing suicidality should also be included. It is essential that gatekeeper trainings also include information regarding suicidal disclosures made online. Indeed, the majority of participants indicated that that they have encountered a post online that made them concerned that a peer was suicidal or experiencing a mental health crisis—this is a common occurrence in the lives of young people and it is essential that young people feel equipped with the skills necessary to act in these situations.

It should be stated explicitly that the goal of gatekeeper training and peer intervention behaviors in the context of social networking websites is not to equip individuals with the skills to be the sole point of intervention (i.e., to help a peer in

distress entirely by themselves). Lay populations—even those with some level of mental health training—should not be considered a substitute for trained crisis management professionals, and doing so would put undue burden on the individual as well as increased risk of harm to the suicidal peer. Instead, the goal of gatekeeper training should be to build knowledge, skills, and self-efficacy/PBC in accessing appropriate resources and help for a suicidal peer and knowing how and being willing to do so in an immediate and helpful manner when confronted with suicidal disclosures on social networking websites, even those made publicly.

The bystander effect is a very real barrier to peer interventions to suicidal disclosures made online, specifically those made in the presence of other bystanders (i.e., a public post on a wall). In these contexts, individuals may be more likely to assume that others have intervened with the individual and see less of a need to intervene themselves, resulting in less frequent and lower-quality intervention behaviors. Gatekeeper trainings should address this phenomenon specifically, with an understanding of bystanders expanded to include the perceived presence of others on social networking websites. Gatekeeper training programs can adapt methods of increasing bystander intervention behavior utilized by other areas of public health concerns, such as the Green Dot bystander intervention program related to interpersonal violence (e.g., Coker et al., 2015) or the Bringing in the Bystander program related to sexual or relationship violence (e.g., Peterson et al., 2016). Gatekeeper training programs can also address general myths about suicidal disclosures made publicly on social networking websites, such as the individual making the post not being serious about the disclosure or making the post for

attention, and emphasize ways that individuals can take the post seriously and seek help for the individual through the appropriate avenues.

Gatekeeper training programs can also discuss intervening even in the context of ambiguous suicidal disclosures. Although the explicit versus ambiguous nature of the suicidal disclosure seemed to have less of a strong impact on intervention behavior than did the presence or absence of bystanders in this study, there is evidence that ambiguous disclosures are associated with fewer intervention behaviors in earlier work (e.g., Kalafat et al., 1993). Bystander intervention practice targeting increased recognition of even these ambiguous disclosures as being indicative of a crisis situation in need of a response can be utilized. Work towards identifying warning signs about suicidality and addressing attitudes related to less-explicit disclosures can also help in identifying ambiguous disclosures as still necessitating intervention.

Additional barriers to intervening with a suicidal peer on social networking websites should also be addressed. For example, it is likely difficult to choose to and effectively intervene with a peer that is not a close friend, or one for whom the individual does not have contact information (e.g., the individual may not know where the peer lives to direct emergency responders). Ways to intervene in these instances should be discussed and role-played if possible, to promote self-efficacy and intentions to intervene.

Peer gatekeeper and bystander intervention training is just one component of larger suicide prevention efforts and by no means is the sole piece of preventing death by suicide. Communities and organizations implementing suicide prevention programs should include other helpful components such as screening, dissemination of hotline numbers, and plentiful and available resources for those in need; it is recommended that

peer gatekeeper training emphasizing bystander intervention be included as a component of these larger efforts. A larger goal in suicide prevention is to ensure that individuals experiencing suicidality have access to and are willing to seek out formal sources of help rather than communicate distress on social networking websites; however, existing barriers to help-seeking indicates that this behavior is likely to continue and, as such, should be planned for.

Implications for Clinical Practice

Finally, these results have implications for clinicians working with adolescents and young adults experiencing suicidality. Clinicians should regularly assess how their clients use social networking websites, with particular focus on how they discuss and disclose mental health information. Given the presence of the bystander effect on disclosures of suicidality made on social networking websites, as well as the overall questionable quality of intervention behaviors utilized by participants in this study, it is clear that expressing suicidality via social networking websites is an ineffective way of seeking help for mental health concerns that is unlikely to result in appropriate help received. It is also possible that posting explicit suicidal content online may exacerbate suicidal ideation and risk in others who view this content (as observed by Arendt et al., 2019). As such, clinicians should incorporate more helpful and safe means of help-seeking behavior as they safety plan and work with clients experiencing suicidality. Methods of help-seeking that are more immediate and direct (e.g., calling a specific friend, seeking out mental health help, contacting the National Suicide Prevention Hotline or the Crisis Text Line) should be strongly emphasized. Clinicians who are aware of social media behaviors of their clients may also find benefit in regularly checking in

on posting about mental health difficulties and assessing the helpfulness of these behaviors in their clients as a means of helping clients develop these more helpful/safe methods of coping.

Clinicians can also assess the function of social media in their clients' lives, particularly the function of disclosures related to mental health distress and suicidality. Clinicians can then work with their clients to develop alternative forms of coping that serve a similar function. For example, clients who communicate mental health distress on social media as a means of seeking support and connection with others can work to strengthen existing social support networks and identify specific individuals to whom they can reach out if in need of support. This will bolster the feeling of connection the individual experiences while ensuring that they utilizing more helpful and adaptive means of coping with distress.

It is also likely that clinicians may work with clients who have the experience of observing suicidal posts by peers online. Clients may mention these instances to clinicians, as they feel distress related to a friend in crisis and are unsure of what to do. Clinicians can help their clients identify resources and ways to seek help for their friend in need, again emphasizing immediate actions taken through appropriate help-seeking channels, such as calling 911. Clinicians should discourage clients from passive or low-immediacy forms of intervention, as well as from trying to help a friend solely by themselves, for reasons noted above. Attitudes and concerns surrounding seeking out formal help for a friend can be explored with the client in session. Clinicians can help clients identify and problem-solve around barriers to intervention, build a sense of

efficacy and behavioral control in intervening, and even role-play selected intervention behaviors.

Future Directions

There are many avenues for future directions for this line of research that went beyond the scope of the current study. There are many smaller aspects of this work that can be altered to determine any impact on responding and the presence/absence of the bystander effect.

As relationship with the individual in need of intervention can impact bystander intervention behaviors (Bastiaensens et al., 2014; Brody & Vangelisti, 2016; Chang et al., 2018; Corbitt-Hall et al., 2016; Egan et al., 2013), this study chose to hold this variable constant by telling participants to assume that all individuals within the experimental page were acquaintances. Future studies can manipulate this variable to determine if there are any differences in responding or changes in the impact of the bystander effect if the participant is told to assume that the individual making the post is a close friend versus a stranger. It is possible that the impact of the bystander effect will vary based on the assumed closeness of the relationship between the participant and the poster.

To maintain a clean distinction between supportive and nonsupportive bystander conditions, this study chose that all comments (i.e., the bystanders) under the experimental post would reflect either entirely supportive or nonsupportive attitudes, depending on the condition. While this allowed for distinct conditions, this is not reflective of how individuals comment on social networking websites in real life and decreases the environmental validity of the study somewhat. Future replications of this study can include a condition that is a mix of supportive and nonsupportive comments;

this can increase environmental validity and also provide a measurement of how social networking website interactions more reflective of real life impact the bystander effect and interventions with suicidal disclosures.

To represent inactive bystanders, this study utilized bystanders adopting nonsupportive attitudes rather than bystanders who did not respond to the post at all. This was chosen to create a distinction between the true “no bystander” condition and the condition representing the presence of inactive bystanders. Future studies can include a condition wherein the suicidal post is made in “public” manner where bystanders are likely to have seen the post but chose not to respond to it in any manner (i.e., a post made on a wall that has not received any comments). This can be compared to responses in other conditions in this study to determine if there is a difference between nonsupportive and truly inactive bystanders, as well as differences between pure no bystander conditions and conditions where bystanders are ostensibly present but actions cannot be observed.

Finally, there are a number of additional variables that may have an impact on intervention behavior. For example, demographics of the individual making the suicidal post (e.g., gender, race) can be manipulated to determine if there are differences in responding that vary by these demographic variables. Number of bystanders can also be manipulated. Replications of this study on other social networking websites (e.g., Instagram, Twitter, etc.) can determine if these results are generalizable across online platforms. Additionally, replication of this study with populations outside of young adults, especially with adolescent populations, is necessary to obtain evidence about the generalizability of results.

Limitations

This study is not without its limitations. There are, of course, questions regarding the ecological validity of this study (i.e., the extent to which the results of this study are representative of real-world behaviors). While the primary investigator took many steps to ensure that the simulated social networking website page, posts, and comments were reflective of content participants might encounter in their everyday lives, it still cannot be concluded that the behaviors of the participants accurately represent how they would behave in real-life contexts. Although participants were not told at the onset of the study that responses to suicidal content was being measured, participants were aware that they were participating in research and that the social media content they were viewing was not real; this may have diminished the emotional weight of viewing suicidal content that would likely be present in real-world contexts. Additionally, there are a number of variables that cannot be controlled within an experimental setting, such as the impact of the personal relationship an individual might have with a friend posting on a social networking website or behavioral history that the individual may know about the friend. Minute details about each encounter with an individual disclosing suicidality on social networking websites could have a possible impact on an individual's behavior towards them, such as specific wording of the post or the comments, time of day, level of attention the individual is dedicating to the post, and even the individual's mood. It is challenging to control for or replicate these circumstances in an experimental setting, and context is important to consider in the analysis of an individual's decision to intervene with a peer experiencing suicidality.

Additionally, it is important to note that this study assessed one component of participants' responses to a peer experiencing suicidality. We cannot draw conclusions that an examination of their responses following more prolonged interaction with a suicidal peer would or would not be of a different quality than observed in this study. For example, a participant who responded solely that they would send a message via the social networking website just to talk to the individual would not—after learning more information of the friend's mental health or encountering difficulties getting in touch with the friend—choose to engage in a high-quality intervention behavior, such as contacting the police. Again, these are nuances that are difficult to capture in a single study but could be addressed through more in-depth or interactive experiments.

Selection into this study should be considered; although the study did not advertise itself as being pertaining to suicide, this content became apparent shortly into the survey and it is possible that participants uninterested in or bothered by this content may have chosen to discontinue the survey. It is difficult to determine if the participants who fully completed the survey (i.e., did not discontinue prematurely after learning that the survey was related to suicide) exhibited different attitudes towards suicide and intervention behaviors than those who dropped out or the general population.

Effect sizes in the analyses should be taken into consideration, particularly effect sizes for analyses investigating differences in response quality between explicit and ambiguous suicidal statements. These effect sizes were consistently found to be small, suggesting that the strength of the relationship between explicit/ambiguous statements and response quality is not particularly strong. The effect sizes for differences in response quality and bystander conditions were measured as being higher, with consistently

medium effect sizes, indicating a somewhat stronger, although still not optimal, relationship.

Finally, a note should be made regarding the diversity of the study sample, which was largely female (67%) and Caucasian (73.7%). While no gender (defined as men/women) differences in response quality were found, the relatively homogenous nature of the participants in this sample limits generalizability into other populations.

Summary and Conclusion

This study investigated the impact of the bystander effect on peer responses to suicidal disclosures made over social networking websites. There was evidence that participants were more likely to respond and provided higher-quality responses to suicidal statements—regardless of the severity of the statement—in situations when there were no bystanders present than in situations when there were bystanders present. Additionally, it was found that individuals provided higher-quality responses to suicidal statements that were explicit rather than ambiguous in nature. This study represents the first investigation into and evidence for the presence of the bystander effect on peer responses to suicidal statements on social networking websites. The overall results speak to the importance of peer gatekeeper training as well as specific training and skill development in how individuals can respond to and intervene with peers disclosing suicidality online in a way that is likely to immediately help the individual. Further research is needed into the phenomena of the bystander effect in this context, and learning more about how the bystander effect impacts peer intervention behaviors can take the field one step closer in the ultimate goal of prevention of death by suicide.

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Appendix A

Codebook for participant responses

Table A.1 Coding guidelines for participant responses

<p>1- No response– <i>did not click on the post (but still passed the validity items and could correctly identify what the suicidal statement was)</i></p>		
<p>2- Limited/unhelpful response – <i>not explicitly stating any intervention behavior; response is too limited to determine what intervention behavior will occur (e.g., one-word responses); unhelpful responses (e.g., like the post); explicitly negative responses (e.g., ignore them)</i></p> <ul style="list-style-type: none"> • Overtly negative responses <ul style="list-style-type: none"> ○ Ignore them • Emotional responses, no actual intervention behavior <ul style="list-style-type: none"> ○ Be shocked • Indirect intervention, does not actually interact with any other humans <ul style="list-style-type: none"> ○ I would look at their Facebook page to see what was going on. ○ Like the post ○ “heart” emoji • Responses directed at others who commented on the post, not the individual who posted <ul style="list-style-type: none"> ○ I would report the negative comments • Contacting individuals other than the suicidal individual to gather information about the suicidal individual, with no comment of asking others to check in on or help the suicidal individual <ul style="list-style-type: none"> ○ I would ask their friends what was going on • One-word responses <ul style="list-style-type: none"> ○ Respond ○ Comment 		
	<p>Low immediacy - <i>reaching out to the individual through a means that is unlikely to result in immediate assistance (e.g., through the social networking website, through a mutual friend)</i></p> <p>Statements where no specific information is included about through what means the</p>	<p>High immediacy – <i>reaching out to the individual through a means that is very likely to result in immediate assistance (calling or texting the person, visiting them, some other real-life action)</i></p>

	individual would respond or reach out to the individual are assumed to be low immediacy (e.g., “talk to them”)	
<p>Low/limited helping - <i>NO specific statement of trying to get help for them but some indication of positive or supportive responding</i></p> <p>Responses that only say they would “talk to” the individual are considered low/limited helping</p>	<p>3</p> <p>Low-immediacy intervention and low/limited helping</p> <ul style="list-style-type: none"> • I would private message them • Attempt to talk to them through direct message • Comment, privately, to the individual to talk about it • Contact whoever wrote the post and provide support <p>A statement that they would contact family or friends with NO statement that they would also contact the suicidal individual is coded a 3</p> <ul style="list-style-type: none"> • call their roommates / family 	<p>4</p> <p>High-immediacy intervention and low/limited helping</p> <ul style="list-style-type: none"> • I would message the person on facebook, call them if I had their number, and let them know that they're not alone. Try and get them to open up • call the poster immediately • call or meet the person • talk to them in person and discuss how they are feeling and why they are feeling the way they do.
<p>Intermediate helping - <i>ambiguous statement of trying to get help, an indication that they would try to help the person themselves, or gathering more information before seeing if help is needed but NO statement of the help they would seek if they determine help is warranted.</i></p> <p>Responses that say they would “check in” or “see if they are</p>	<p>4</p> <p>Low-immediacy intervention and intermediate helping</p> <ul style="list-style-type: none"> • message the person individually to see if they were in need of help • I would respond as soon as I saw this and check in on them <p>A statement that they would BOTH reach out to the suicidal individual and reach out to family/friends to check in on the individual as well is coded a 4</p>	<p>5</p> <p>High-immediacy intervention and intermediate helping</p> <ul style="list-style-type: none"> • I would call/text this person to make sure they are okay. • For cases like this in the past, I've gone to see the person. Or I've called friends to go check on the person if I can't be there. I don't take this lightly. I will call, drive, contact anyone to make sure they are okay. I don't take this lightly

<p>okay” are considered intermediate or ambiguous helping</p>	<ul style="list-style-type: none"> Reach out to this person to make sure their ok and check in with family/friends of them so that they can check in irl <p>Flagging/reporting the post on the social media website is coded a 4</p> <ul style="list-style-type: none"> I would report the post to Facebook 	<p>Vague statements of seeking help with no specific statement about the kind of help sought are coded as a 5</p> <ul style="list-style-type: none"> I would seek help for them
<p>High helping - <i>specific statement of seeking help for them through means other than oneself (calling 911, calling them with explicit statement of getting help for them)</i></p>	<p style="text-align: center;">5</p> <p style="text-align: center;">Low-immediacy intervention and high quality helping</p> <ul style="list-style-type: none"> Refer to this person to someone who can help Send them in the direction of resources that could help them If there was no response or the response was as extreme as this one I would seek help I would private message them and try to see if i can connect them to resources 	<p style="text-align: center;">6</p> <p style="text-align: center;">High-immediacy intervention and high quality helping</p> <ul style="list-style-type: none"> I would immediately pick the phone up and call this individual. After assessing the severity, I would contact additional resources/professionals if needed. Go and talk to the person if I could and refer them to a mental health facility if I could. call someone they know or 911 Notify local authorities and get this person help. call the police to do a wellness check on them or their family

General coding guidelines:

- Highest quality response is coded if multiple responses are listed
 - E.g., “I would talk to them and call the police” would be coded as a 6

- Any statements that mention that the participant would “respond” without specifying through what means they would respond are assumed to be referring to the social media platform
- If there is any sort of uncertainty (e.g., I would maybe call them) participants are given the benefit of the doubt and code as if the uncertainty is not there
 - same rule applies to a “depending on the person” statement – give the benefit of the doubt and code as if the caveat doesn’t exist
 - same rule applies to 2 different responses separated by an “or” (e.g., I would talk to them or call the police) would be coded as a 6.
- Responses that put the onus on a behavior on the suicidal individual (e.g., I would tell them to call me) are considered low immediacy

Responses are coded higher based on:

- Immediacy of response (how quickly this response will reach the individual)
- Quality of helping behavior (to what extent is the response an example of helping behavior)
 - For the purposes of this study, the most helpful behaviors are those that indicate referral towards formal sources of help (e.g., mental health professionals, 911, crisis lines)