LONELINESS AMONG COLLEGE STUDENTS:
EXAMINING POTENTIAL COPING STRATEGIES AND THE INFLUENCE OF
TARGETED MESSAGES ON THE LIKELIHOOD OF BEFRIENDING

by

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B.A., Minot State University, 2008

M.A., Texas State University–San Marcos, 2012

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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Abstract

While many different facets of loneliness have been explored, research examining the efficacy of interventions to reduce it has often been overlooked, particularly among college students. Such research is important, as individuals under 25 years of age experience some of the highest rates of loneliness (Victor & Yang, 2012). Furthermore, while the majority of interventions have targeted the lonely individual, few have examined loneliness from the perspective of those *around* the lonely person. As a result, the objective of the current dissertation was to not only examine the effectiveness of potential interventions in reducing loneliness among college students, but see what types of targeted messages may be successful in increasing helping behavior towards lonely individuals.

In Study 1, participants read one of four different types of messages, including mindfulness, changing maladaptive social cognitions, coping behaviors, and control. Although there were no considerable differences in loneliness levels at Time 2 (likely due to participants not being especially lonely), a significant number of individuals reported favoring the mindfulness technique.

In Study 2, five different types of targeted messages were utilized, based on Latané and Darley's (1970) bystander intervention model. These included the "notice" condition, which focused on increasing awareness of lonely others; the "assume responsibility" condition, where responsibility towards helping lonely others was emphasized (as well as awareness); and the "decide (to help)" condition, which offered specific steps to reach out to lonely individuals (in addition to awareness and responsibility); two control conditions were also employed. Results showed that participants in the "decide" condition were significantly more likely to report feeling prepared and inclined to help in the future. In addition, those in the "assume responsibility" and

"decide" conditions also reported significantly increased levels of awareness of lonely individuals at the Time 2 follow-up.

Together, such results indicate that mindfulness is a technique worth investigating further with regard to reducing loneliness among college students. Furthermore, in order to increase helping behavior, Study 2 suggests that targeting an individual's specific stage of change may not be necessary; rather, presenting individuals with all relevant information, perhaps at multiple time points, may be particular efficacious.

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Chapter 1 - Introduction

The Experience of Loneliness

As humans, we all have a strong need to belong – to feel part of a group, to make connections with other individuals, and to have positive social interactions with those around us. Aspects such as these are central to Baumeister and Leary's (1995) theory regarding need for belongingness, where they maintain that individuals have a strong motivation and need for enduring, affirmative social relationships with individuals around them. Such needs are reflected in the finding that humans not only spend 80% of their waking hours in the company of others (Emler, 1994), but they also rate interacting with others as being more enjoyable than solitary endeavors (Kahneman, Kreuger, Schkade, Schwarz, & Stone, 2004). These findings illustrate that interpersonal relationships play a central role in our identity and well-being. If such belongingness needs are not sufficiently met, however, an individual is likely to experience loneliness as a result (Baumeister & Leary, 1995). As a result of this, the current dissertation aims to reduce such feelings of loneliness through testing competing ways of reducing loneliness, such as through a targeted intervention, in which individuals were exposed to one of three loneliness intervention messages, or through a befriending intervention, in which individuals received a message directed towards helping *others* who may be lonely.

Prevalence

Loneliness, which is typically defined as a discrepancy between one's current and desired relationships (Peplau & Perlman, 1982), is an increasingly common problem in today's society. Previous studies have found that over 50 million individuals (approximately 26% of Americans) reported feeling lonely in the past two weeks (Weiss, 1973); similarly, in their review on

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loneliness, Heinrich and Gullone (2006) mentioned that past estimates of loneliness have ranged from 15-30% of individuals experiencing continuing feelings of loneliness. As will be discussed later, college students are likely a driving force behind these findings, as many are adjusting to the new collegiate environment. For example, Cutrona (1982) found that 75% of freshman reported feelings of loneliness during their first two weeks of college. Heinrich and Gullone (2006) noted, however, that many of the prevalence studies of loneliness are out-of-date, and therefore may not be an accurate representation of current levels of loneliness in today's society. Victor and Yang (2012) provided a slightly more recent figure through their prevalence assessment of individuals in the United Kingdom, finding that approximately 5% of individuals between the ages of 25 and 44 reported feelings of loneliness all or most of the time in the past week; those under the age of 25 and older than 65 reported slightly higher levels, reporting that they experienced such feelings of loneliness all or most of the time approximately 9% of the time during the past week. Further, they explain that loneliness rates tend to illustrate a u-shaped distribution, with individuals under the age of 25 and those over the age of 65 reporting the highest levels of loneliness as compared to other age groups. Because many college students are under the age of 25, such findings indicate that loneliness may be a significant issue during this time period.

Characteristics of Loneliness

Regardless of the age group being studied, there are still a number of characteristics central to loneliness. One such feature is its inherent subjectivity – as explained by Hawkley and Cacioppo (2010), loneliness is marked by *perceived* social isolation, rather than objective isolation. For example, an individual may have many social contacts and friends and feel lonely, whereas another individual may have relatively few close contacts and may be content in their

relationships; because of this, loneliness depends more upon the individual's personal assessment of his or her relationships, rather than solely on their number of friends (Heinrich & Gullone, 2006). Tying in with its subjective quality, it is also important to note that loneliness should be distinguished from aloneness (Cacioppo, Grippo, London, Goossens, & Cacioppo, 2015). Here, aloneness is exemplified by being alone or isolated, and is typically associated with neutral feelings. Loneliness, in contrast, occurs when an individual is not happy with his or her current state of their relationships, and subsequently experiences negative feelings such as sadness or hopelessness (Buchholz & Catton, 1999); studies have also shown that lonely individuals do not spend significantly more time alone than non-lonely individuals (Hawkley, Burleson, Berntson, & Cacioppo, 2003). As a result, an individual may be alone *and* experience feelings of loneliness, or may be alone, but not lonely, further illustrating the subjective experience of loneliness (Cacioppo et al., 2015). In addition, it is important to note that one cannot simply "fix" an individual's loneliness by removing them from their aloneness and putting them in the company of others (Weis, 1973). In fact, it is possible that such exposure could work to increase loneliness; for example, interacting with a married couple may remind the single individual of his or her own desire of a significant other, and subsequently increase feelings of isolation and loneliness.

In addition to the nature and experience of loneliness, there is also disagreement regarding the particular dimensions of loneliness itself. For example, Weiss (1973) argued that loneliness consisted of multiple dimensions, and introduced the concept of two different subtypes of loneliness: emotional and social. Emotional loneliness, also known as intimate loneliness, occurs when an individual feels isolated from those around them and may not have as intimate of a connection with others as they might like (Dykstra & Fokkema, 2007; Weiss, 1973;

McWhirter, 1997). In contrast, social loneliness typically refers to a lack of social networks from which the individual can tap into in order to receive support, such as an individual who may have moved to a new location and may not know many people, or have many opportunities to make new friends.

Within these types of loneliness, some have argued that such branches can be divided into even more subtypes – for example, that emotional loneliness can be broken into two additional components – romantic loneliness, in which the individual is unsatisfied with their current romantic relationships; and family loneliness, in which involved feelings of loneliness are experienced with regard to relationships with family members (DiTommaso & Spinner, 1993). Others have also included another dimension of loneliness in addition to emotional and social loneliness: collective loneliness (Cacioppo et al., 2015). This type of loneliness refers to one's shared social identity with others, whether it may be a sports team, cultural identity, or group.

In contrast to this, many researchers still measure loneliness as a unidimensional construct, rather than examining potential subtypes. For example, the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980; Russell, 1996), one of the most commonly used scales for loneliness (Penning, Liu, & Chou, 2014), does not measure multiple subtypes of loneliness. However, due to such unidimensional measurement they note that the scale has received criticism, as some believe that it is only focusing on the social element of loneliness. Russell et al. (1980) argues, however, that the scale can be used to measure overall levels of loneliness, a state that can be impacted by potential issues in many different types of relationships, and that his scale is able to assess a global dimension of loneliness. In doing so, it is possible that one is able to measure loneliness as a unidimensional experience, without omitting the existence of

potential loneliness subtypes (Tharayil, 2012). Furthermore, others argue that the similarity between each of the subtypes is large enough that assessing loneliness from a one-dimensional scale provides ample measurement of an individual's experience of loneliness (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006).

Finally, it is also important to differentiate between state and trait experiences of loneliness. Here, because loneliness is closely integrated in relationships with others, it may occur as a result of circumstantial factors such as, for example, feeling rejected, not being able to spend the desired amount of time with a friend, or moving to college and having to form new friendships and relationships. Because such experiences are primarily caused by situational factors and typically do not tend to be long lasting (Perlman & Peplau, 1998), they would be considered state loneliness. However, when an individual tends to feel consistently lonely, such as feeling chronically unhappy with his or her relationships over long periods of time, this would typically be represented by trait loneliness.

Loneliness and Associated Personality Characteristics

When discussing the issue of loneliness, it is also important to keep in mind that the condition is often associated with a number of other individual traits, one of which is shyness (Fitts, Sebby, & Zlokovich, 2009; Huan, Ang, Chong, & Chye, 2014; Vanhalst, Luycks, & Goossens, 2014; Woodhouse, Dykas, & Cassidy, 2011, Zhao, Kong, & Wang, 2013). It may be that shy individuals experience a lower level of self-esteem, or do not obtain the same amount of social support from the individuals around them, whether this is from being uncomfortable when around others, or perhaps not being as proficient in social skills (Zhao et al., 2013). As a result, such feelings of shyness or low self-esteem may influence an individual's relationships, subsequently setting the stage for increased levels of loneliness. However, Fitts et al. (2009)

found that shyness was a significant predictor of loneliness even after controlling for relevant factors such as perceived social competence of the individual; similarly, higher levels of loneliness have been observed with greater shyness, even after controlling for social acceptance (Woodhouse et al., 2011).

In addition to shyness, several other personality characteristics have also been associated with loneliness. For example, Cacioppo, Hawkley et al. (2006) found that individuals who were lonely were significantly more likely to have greater levels of anxiety, neuroticism, negative affect and fear of being negatively evaluated. In addition, higher levels of loneliness have also been associated with being less optimistic, having worse social skills, and being less agreeable, less extraverted, and less sociable, among other traits. Vanhalst et al.'s (2012) findings support these results, as they suggest that extraversion and neuroticism may play a significant role in loneliness, particularly when also focusing on depression. In particular, it may be that extraverts experience significantly lower levels of loneliness because they have larger social networks from which they can draw support; neuroticism may instead be occurring more so at the cognitive level, as studies have shown that the relationship between neuroticism and loneliness is not mediated by factors such as one's social network (Stokes, 1985). Vanhalst et al. (2012) note, however, that few studies have examined the relationships between loneliness and Big 5 traits, and so the exact mechanisms behind such relationships are not fully understood.

Causes, Risk Factors, and Predictors of Loneliness

Because loneliness is a universal experience, it can be influenced by a number of different variables. Among older adults, loneliness is often associated with living in locations such as assisted living facilities, having a low education level, low socioeconomic status, and as might be expected, experiencing the death of one's spouse or having few friends (Meltzer et al.,

2013; Savikko, Routasalo, Tilvis, Strandberg, Pitkala, 2005). Chronic health conditions and living alone have also been implicated (Theeke, 2009).

In younger individuals such as college students, a slightly different picture emerges with regard to risk factors. Ames et al. (2011) explain that moving away to college can be a significant change and transition for emerging adults. For example, during this time, they are required to adapt to a number of different changes and factors, such as interacting with others and working to develop new relationships, living in a different location with new and unfamiliar people, dealing with potentially more difficult academic classes, and moving away from home and away from close relationships between their family and friends. Such experiences are demonstrated in the finding that close to 50% of students reported above-average levels of stress (Brandy, Penckofer, Solari-Twadell, & Velsor-Friedrich, 2015), indicating that such a transition can have a strong negative impact on students. As compared to their friends who may not be attending college, students may experience different challenges and stressors which they will have to learn to cope with (Brandy et al., 2015); if they do not develop such efficient coping mechanisms, greater levels of loneliness may emerge as a result. Cacioppo et al. (2015) explain that although an individual can experience feelings of loneliness at any point in time, such feelings of isolation tend to be more prominent among those who are not readily part of a strong social network, such as older adults who live by themselves, or by extension, college students who may not have access to a strong social support network within their new environment.

While the transition to college certainly can be a trigger for loneliness, there are additional behaviors and cognitive processes that can play a specific role in the development of loneliness among students. As will be discussed in greater detail below, Wilbert and Rupert (1986) found that students who had more dysfunctional attitudes were significantly more likely

to experience loneliness. Here, students were more likely to be lonely if they believed, for example, that they would have more difficulty finding a romantic partner, if they experienced more anxiety in interactions with others, thought that others viewed them as undesirable, or had other negative expectations and viewpoints. Similarly, Vaux (1988) pointed out that such individuals may not have as secure an attachment to others, or may not have a strong social network that they are a part of, suggesting that risk factors for loneliness may in part result from having poor support systems or individual characteristics that might interfere with the development of satisfying relationships. It is also possible that lonely students may have difficulties with decoding information from others (Zakahi & Goss, 1995). If the individual is unable to make sense of more understated messages in an interaction, they may subsequently be unable to respond appropriately, which may also lead to increased feelings of loneliness.

Although not among college students, Rokach, Orzeck, Moya and Exposito (2002) found similar results with regard to risk factors among a sample of adults. Here, loneliness was related to a number of different issues, such as believing that the individual had personal shortcomings such as a fear of intimacy, low self-esteem, or even having past experiences with loneliness due to a dysfunctional home life or unsatisfactory relationships with others. Among children, loneliness was tied to feeling unsupported by individuals such as the child's mother, father, and classmate friends (Asendorpf & van Aken, 2003); similarly, levels of loneliness among one's parents and a history of being bullied were predictive of significantly higher levels of loneliness among adolescents (Segrin, Nevarez, Arroyo, & Harwood, 2012), indicating that there are a number of factors that can influence feelings of individual loneliness.

In addition, even the coping strategy that one chooses to use can have a significant impact on his or her subsequent loneliness. For example, Cecen (2008) examined coping strategies

among lonely and non-lonely students, finding that students who utilized more coping strategies and behaviors that were more self-confident, optimistic, and social-support seeking were significantly less likely to be lonely. In contrast, lonely students were significantly more likely to practice more submissive or hopeless strategies. Similarly, lonelier students were also found to be more likely to engage in what Van Buskirk and Duke (1991) referred to as a "sad passivity" coping style, marked by behaviors such as crying, sleeping, overeating, or simply doing nothing, among others. Naturally, individuals who may not feel as comfortable accessing their social network or who may have lower levels of self-esteem have also been found to be at higher risk of experiencing loneliness (McWhirter, Besett-Alesch, Horibata & Gat, 2002). Such strategies and findings are not surprising, given that lonely individuals are also prone to a number of negative cognitive biases regarding their own skills and abilities (Heinrich & Gullone, 2006). As part of this, they may be more likely to believe that they are not capable of changing their current situation, or may experience loneliness due to personal characteristics that they believe cannot be improved. Such biases and beliefs will be discussed more in-depth below.

Loneliness & Mental Health

While the mechanism behind loneliness appears simple, in that the individual is not content with his or her relationships, experiencing such feelings over a long period of time can have significant repercussions. With regard to mental health, a number of studies have linked depression with the experience of loneliness (Cacioppo, Hughes, et al., 2006; Fried et al., 2015; Gan, Xie, Duan, Deng, & Yu, 2015; Lasgaard, Goossens, & Elklit, 2011; van Beljouw et al., 2014), although the direction of effect is still being explored. For example, Gan et al. (2015) found that loneliness and rumination were found to be predictive of depressive symptomatology at a later time point; Fried et al. (2015) found similar results in their study on older adults, in that

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undergoing an unfavorable life event, such as losing a spouse, often resulted in feelings of

loneliness, which would subsequently trigger depressive symptoms in the individual. In contrast,

Lasgaard et al. (2011) found that loneliness did not result in more feelings of depression over

time, but rather, that such depressive symptoms led to more loneliness. Regardless of the

direction, the two are highly correlated, with van Belijouw et al. (2014) finding that

approximately 88% of individuals with depressive symptoms were lonely; such individuals not

only reported a lower quality of life, but additionally suffered from worse mental health, such as

experiencing greater depressive symptoms.

In addition to depression, loneliness has often been linked with low self-esteem (Davis,

Hanson, Edson, & Ziegler, 1992; He, Shi, & Yi, 2014; McWhirter, 1997; Vanhalst, Luyckx,

Scholte, Engels, & Goossens, 2013). Here, low self-esteem was significantly predictive of higher

levels of loneliness (McWhirter, 1997), although Vanhalst et al. (2013) found that both self-

esteem and loneliness each affect one another. For example, if an individual suffered from low

self-esteem, they may subsequently experience an increase in loneliness; in contrast, if an

individual is lonely, this may open them up to feelings of low self-esteem. This may in turn

affect life satisfaction, as He et al. (2014) found that adolescents who had poor self-evaluations

experienced more loneliness and more negative emotions, which subsequently resulted in a

lower satisfaction with life. Similarly, Kong and You (2013) found that the relationship between

social support and life satisfaction was fully mediated by loneliness and self-esteem, indicating

that the two play a significant role in an individual's quality of life.

Lonely individuals are also significantly more likely to have higher levels of anxiety

(Zawadzki, Graham, & Gerin, 2012) mental disorders such as phobias (Meltzer et al., 2013), as

well experiencing greater levels of suicide ideation (Van Orden et al. 2008). In the latter,

researchers found that college students' level of belongingness mediated the relationship between semester and suicide ideation. This suggests that, at times when a campus may be less busy, such as summer sessions, students' feelings of inclusion and belonging may go down due to changes in his or her social group, which may therefore increase suicide or suicide ideation. Such findings show that feelings of loneliness resulting from lack of belonging can have a significant and serious impact on an individual.

Furthermore, loneliness also has been implicated not only with an increased likelihood of developing of Alzheimer's disease, but lower cognitive functioning as well (Wilson et al., 2007). Here, researchers found that older adults who were lonely had not only significantly lower levels of cognitive functioning at the beginning of the study, but declined significantly more over the course of the study, as compared to controls.

Loneliness & Physical Health

In addition to mental health, loneliness has also associated with a number of physical health problems. For example, loneliness has been associated with an increased risk of cardiovascular problems such as higher blood pressure (Hawkley, Masi, Berry & Cacioppo, 2006), having a coronary condition (Sorkin, Rook, & Lu, 2002), or decreased cardiac output (Hawkley, et al., 2003). It has also been associated with increases in pain, fatigue, and a greater number of symptoms experienced (Jaremka et al. 2014). Lower levels of physical activity (Hawkley, Thisted, & Cacioppo, 2009; Shankar, McMunn, Banks, & Steptoe, 2011) and perceived physical activity have also been found (Newall, Chipperfield, Bailis, & Stewart, 2013), indicating that loneliness may play a role in an individual's level of motivation to be physically active and engage in exercise.

Loneliness has also been found to affect an individual's level of sleep (Hawkley, Preacher, & Cacioppo, 2010), such that lonely individuals may derive less wholesome sleep and recovery from the same number of hours as their non-lonely counterparts. This can subsequently lead to poorer daytime functioning, which is also predictive of loneliness, thus setting up a cycle of functioning that is even more conducive to feelings of social isolation. Social connection can help to break this cycle, however, as Sladek and Doane (2015) found that among individuals with high levels of loneliness, having more everyday social interactions with others was significantly associated with the individual spending more time asleep, as compared to their non-lonely counterparts.

In addition to the issues listed above, loneliness has also been linked to higher mortality rates (Holt-Lunstad, Smith, & Layton, 2010; Luo, Hawkley, Waite, & Cacioppo, 2012). In their meta-analysis on social relationships and mortality risk, Holt-Lunstad et al. (2010) found that individuals with strong social ties have a 50% increased likelihood of survival, controlling for a number of demographic variables. They suggest that the implications of such social relationships are comparable or greater than the effects of changing a number of current risk factors for mortality (e.g., smoking, obesity, physical inactivity). While lack of social support is not equivalent to loneliness, such findings do suggest that maintaining strong relationships with others can have significant positive effects for one's health, subsequently indicating that feelings of loneliness may not be the most beneficial. Such findings are also replicated by Luo et al. (2012), who found that lonely older adults had a significant increase in mortality (1.96 times) over the following six years, as compared to less lonely older adults. This may be due in part to poor health habits, as Shankar et al. (2011) found that lonely older adults were significantly more likely to report more health-risk behaviors such as smoking. However, Hawkley et al. (2003)

found that loneliness did not predict differences with regard to sleeping, eating, or consuming caffeine, as compared to non-lonely individuals, indicating that the relationship is still unclear.

Although loneliness has multiple impacts on physical health, studies have shown that there are ways of potentially mitigating its effects. For example, Barlow, Liu, and Wrosch (2015) found that among older adults with chronic illnesses, engaging in behaviors such as avoiding self-blame or using positive reappraisal resulted in a protective effect against loneliness. Here, participants were much more likely to experience an increase in level of loneliness if they did not utilize such self-protective strategies, subsequently putting them at an even greater risk of health issues. Similarly, although Newall et al. (2013) found that loneliness was predictive of decreased perceived physical activity and increased mortality, as discussed above, low and moderate levels of happiness moderated this relationship, suggesting that feeling happy may help to buffer against some of the negative consequences associated with loneliness.

As described above, loneliness has been associated with a number of negative physical and mental issues, whether it is increased risk of cardiovascular problems (Hawkley et al., 2003, 2006) higher mortality rates (Holt-Lunstad et al., 2010; Luo et al., 2012), depression (Cacioppo, Hughes, et al., 2006; Fried et al., 2015; Gan, Xie, Duan, Deng, & Yu, 2015; Lasgaard, Goossens, & Elklit, 2011; van Beljouw et al., 2014) and low self-esteem (Davis, Hanson, Edson, & Ziegler, 1992; He, Shi, & Yi, 2014; McWhirter, 1997; Vanhalst, Luyckx, Scholte, Engels, & Goossens, 2013) among others. Given such numerous and far-reaching health issues, as well as the negative feelings that typically accompany the experience of loneliness, it remains crucial that researchers continue to work towards developing effective methods to reduce loneliness not only among populations such as the elderly and college students, but among the general population as a whole.

Individual Interventions for Loneliness

Due to such high levels of loneliness, in addition to the number of mental and physical health risks as described above, there have subsequently been several studies and interventions that have sought to decrease such negative outcomes among individuals who are lonely, the majority of which focus on targeting the specific lonely individual. Researchers have typically divided such intervention literature into several main areas: interventions that work to enhance an individual's social skills and competence, help to provide social support to the lonely individual and increase chances for communication with others, and those that work to change negative thought patterns (Cacioppo, Grippo, London, Goossens, & Cacioppo, 2015; Hawkley & Cacioppo, 2010; Masi, Chen, Hawkley, & Cacioppo, 2011). Hawkley and Cacioppo (2010) point out that only six qualitative reviews have been performed on loneliness interventions in the preceding 30 years, indicating that while loneliness is a significant and extensive issue, such interventions designed to aid in reducing it have subsequently been explored to a much lesser extent. As a result, studies that have attempted to reduce such feelings of lonely individuals will consequently be discussed.

Social Skills Training

Within loneliness intervention literature, many studies have suggested that loneliness may be due in part to a lack of social skills among the lonely individual (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003; Morón, 2014; Ozben, 2013). For example, Morón (2014) found that the lonelier an individual was, the less interpersonal competency they experienced (e.g., skills relating to starting conversations, self-disclosing information, and dealing with conflict, among others). As a result, they suggest that such deficits may be a barrier in the efforts of lonely individuals to connect meaningfully with others. Higher levels of social skills have

additionally been linked to lower levels of loneliness, in addition to higher self-esteem and satisfaction with life (Riggio, Watring, & Throckmorton, 1993). Likewise, Segrin (1999) found that having weak social skills was predictive of not only greater feelings of social anxiety, but also an increase in feelings of loneliness up to four months later. Self-disclosure has additionally been linked to lower levels of loneliness (Wei, Russell, & Zakalik, 2005). Here, self-disclosure may aid individuals in sharing details about themselves in order to cultivate new friendships; if they are lacking in this skill, loneliness may increase as a result. Such a finding is also important with regard to loneliness interventions – if individuals feel more comfortable in telling others that they feel lonely or that they are upset, they may be more likely to receive help, or conversely, more likely to remain lonely if they feel uncomfortable reaching out to others.

An important distinction to make with regard to social skills among lonely individuals, however, is their subjective nature. For example, when asked to play the part of one of two roles in which they either listened to someone speak or were asked to speak on a topic, the performance of lonely individuals was not significantly different from non-lonely individuals with regard to social skills (Vitkus & Horowitz, 1987). What did differ, however, were their self-evaluations – lonely individuals were significantly more likely to believe they were more socially incompetent than their non-lonely counterparts. In contrast, others have found that lonely individuals do behave significantly different in social interactions than non-lonely individuals, such as asking others fewer questions, continuing others' topic of discussion less, and referring back to others significantly less (Jones, Hobbs, & Hockenbury, 1982). It may be possible that lonely individuals have sufficient social skills, but instead *perceive* them to be substandard, or in turn, may have subordinate satisfactory skills and even worse perceptions of

them, leading to potential issues in communicating with others, and as a result, increased levels of loneliness.

Although the relationship between social skills and loneliness is commonly addressed in the literature, interventions attempting to address such lack of social skills appear to be somewhat rare. In one study, Aikawa (1999) examined whether social skills training would subsequently result in reduced feelings of loneliness among students; after 8 training sessions, participants reported significantly better social skills and lower levels of loneliness, although such findings were not maintained after six months. Similarly, Jones et al. (1982) found that providing students with conversational techniques such as how to continue the current topic of discussion, ask questions or make connections back to those around them was successful in reducing loneliness levels; however in this study, the experimental group only consisted of six individuals. In addition, Seepersad (2005) examined the efficacy of a program called "Lonely? Unburdening your Vulnerability" (LUV) among college students. Here, he incorporated several different techniques, such as providing information, weekly assignments and discussions, and journaling on various aspects of loneliness, with particular attention paid to social skills training. Results showed that participants that took part in the program had significantly lower levels of loneliness than those in the control group.

Other studies have examined social skills training within populations such as individuals with an autism spectrum disorder, finding that social skills training in such groups yielded significant improvements with not only social skills knowledge, but also significant reductions in loneliness (Gantman, Kapp, Orenski, & Laugeson, 2012). In children with physical disabilities, a 10-week program focused on targeting social support skills yielded significant reductions in loneliness six months after the training program ended (King et al., 1997); similar results were

found among children with disruptive behavior disorders, in which a social skills training group resulted in significantly lower levels of loneliness (Kolko, Loar, & Sturnick, 1990). Together, such results indicate the social skills training may be beneficial in reducing loneliness; however, more studies are needed in order to fully understand the relationship.

Social Support Interventions

An additional area of loneliness intervention involves increasing opportunities for both social support as well as social interactions. Social support and positive interactions are especially important for the lonely individual, as van Roekel et al. (2013) found that lonely individuals who experienced a positive interaction had significantly greater decreases in their negative affect than those of their non-lonely equals. Within the college student population, these interventions have often been implemented as way to not only decrease loneliness, but also improve general adjustment to university life and academic achievement (Ames et al., 2011; Mattanah, Brooks, Brand, Quimby, & Ayers, 2012), as loneliness has additionally been linked to poorer academic achievement among college students. For example, Mattanah et al. (2012) found that a 9-week support group not only significantly decreased levels of loneliness, but also improved students' academic achievement one year after the study. Ames et al. (2011) also found short-term decreases in students' level of loneliness from their 9-week intervention, which involved weekly discussions about experiences and issues related to the transition to university life (e.g., making new friends, finding a healthy balance between social, work, and academic lives). In addition to weekly meetings, factors such as attachment style may also play a significant role, as having more secure and positive attachments has been associated with lower levels of loneliness and more perceived social support (Bernardon, Babb, Hakim-Larson, & Gragg, 2011). It may be that if college students feel as though they have strong sense of support,

they are less likely to experience loneliness, which will likely result in better academic outcomes as well.

Although loneliness and the transition to university life are important concerns, Ames et al. (2011) notes that very few studies have been utilized or assessed in order to examine their efficacy. Subsequently, other studies have examined social support in more diverse populations with regard to age and educational status. Here, for example, Meltzer et al. (2013) examined loneliness among individuals from $16 - 75+$ years, finding that interacting with others was helpful in reducing loneliness, but less so for individuals who were experiencing a mental disorder such as anxiety or depression, which both tend to be common conditions associated with loneliness (Cacioppo, Hawkley, et al., 2006; Fried et al., 2015; Gan, et al., 2015; Lasgaard et al., 2011; van Beljouw et al., 2014; Zawadski et al., 2012). Here, they suggest that among such individuals, addressing maladaptive thoughts may instead be more important than increasing opportunities for social connection with others.

Still, other studies have taken an even different approach, such as incorporating the use of technology as a way to help individuals to increase levels of social support (Tsai, Tsai, Wang, Chang, & Chu, 2010). Here, elderly adults used videoconferences in order to connect with their family members; findings showed that not only did such individuals report having significantly higher levels of social support, but they were also significantly less lonely and depressed than those who did not have such exposure, indicating that social connections may be particularly important among older adults.

Cognitive-Related Interventions

In addition to the intervention areas listed above, one commonly discussed contributing factor of loneliness involves an individual's social cognitions. For example, lonely individuals

are significantly more likely to have negative perceptions of themselves, ranging from feelings of inferiority, unattractiveness, or even worthlessness, as well as feeling less socially skilled than others, as briefly mentioned above (Heinrich & Gullone, 2006). In a similar vein, they are also more likely to see other individuals and perceive the world around them as being more negative, and view others as less trustworthy and accepting, thus making them more likely to anticipate and worry about negative assessments or thoughts others may have about them (Cacioppo & Hawkley, 2009; Heinrich & Gullone, 2006; Luhmann, Schonbrodt, Hawkley, & Cacioppo, 2014; van Roekel et al, 2013).

Due to feeling lonely, individuals may be more motivated to connect with others in order to reduce their feelings of isolation; however, they may also simultaneously experience a hypervigilance of social threat (Cacioppo & Hawkley, 2009; Hawkley & Cacioppo, 2010; Luhmann, et al., 2014; van Roekel et al., 2013), which further impacts their negative perceptions of the world and viewpoints about others. These biases, then, influence their day-to-day interactions, which may result in more negative exchanges, subsequently leading to not only greater feelings of loneliness and isolation, but confirming their negative views that they hold about themselves and others (Cacioppo & Hawkley, 2009). Because of this, the individual may end up rejecting those around them – those who are needed the most in order to reduce the person's feelings of social isolation, leading to a negative circle of deepening loneliness. Additionally, individuals in this case often believe they are helpless and incapable of changing their situation, believing their loneliness is the result of personality characteristics (e.g., shyness or low social competence) rather than circumstances and traits that may be more malleable (Heinrich & Gullone, 2006).

As a result of this negative vicious cycle, one focus of studies has been to educate individuals regarding the negative and unrealistic thoughts that may be contributing to their current situation. By reducing such negative thoughts and biases, it is possible that feelings of loneliness may subsequently be reduced (Cacioppo et al., 2015; Hawkley & Cacioppo, 2010). Such interventions have been particularly effective in the past, as in their meta-analysis on the efficacy of loneliness interventions, Masi et al. (2011) noted that interventions that work to address such maladaptive social cognitions were the most effective in reducing loneliness levels among participants.

Earlier studies examining cognitive-related interventions, for example, have worked to help undergraduate students to reframe their thoughts (Conoley & Garber, 1985), so that instead of negative thoughts, they were subsequently transformed to highlight benefits or more useful outcomes of loneliness (e.g., loneliness may allow the individual to be more creative or discover more about themselves). However, such reframing attempts were not effective, although the researchers noted that it may be due to issues such as methodological concerns and individual differences; suggesting that further research is needed. Others have compared the efficacy of multiple tailored approaches to loneliness, designed to influence cognitive-behavioral aspects of the condition (McWhirter & Horan, 1996). Here, interventions that focused on changing social attributions (e.g., ways to develop and maintain new relationships, lower stress and increase communication skills, and the importance of establishing relationships and interacting with others) were significantly more effective in reducing loneliness than those that focused solely on intimate relationships.

Other studies have worked to examine behaviors such as rumination and loneliness, finding that the more lonely an individual is, the more likely they are to brood over their situation

(Zawadzki, Graham, & Gerin, 2012). Through these processes, it is possible that a lonely individual may perceive an event or interaction as negative, and continue to ruminate and think about it over long periods of time, subsequently transforming it into a more chronic and ongoing experience of stress, thus making them less likely to reach out and work to resolve their feelings of isolation. Furthermore, it may be that such maladaptive cognitions common among lonely individuals are specifically directed towards a particular person or event, as when participating in a virtual environment game, individuals who rated their character as being lonely engaged in behavioral changes only towards those who excluded them (Luhmann, et al., 2014). It may be that lonely people view specific individuals, such as those that they are friends with, as being somewhat responsible for their feelings of loneliness because their needs are not being met, which can lead them to be more dissatisfied with current relationships rather than those with whom they do not have established relationships, such as strangers or acquaintances (Tsai & Reis, 2009).

Similarly, although not among college students, other studies have examined the role of cognitive interventions such as education in order to enhance overall cognitive functioning and decrease loneliness (Winningham & Pike, 2007). In this study, older adults from assisted living facilities were found to report greater amounts of social support and lower levels of loneliness after having participated in a three-month program devoted to enhancing cognitive activity through retrieving and making new memories and increasing social interactions, among others.

Mindfulness Interventions

Another growing area that has received increasing interest is mindfulness, which is often defined as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment," (Kabat-Zinn,

2003, p. 145). Brown & Ryan (2003) explain that mindfulness differs from functions such as attention or awareness, which are normal components of the human experience; here, mindfulness can be thought of as a heightened focus on and greater cognizance of one's current reality. It is also important to note that the experience of mindfulness is not the same as mind-wandering, which is marked by an interruption of thoughts that are not pertinent to the task at hand (Mrazek, Smallwood, & Schooler, 2012). Indeed, mindfulness was found to have a negative correlation with mind-wandering, with individuals who experience higher levels of dispositional mindfulness having significantly lower levels of mind-wandering.

Although relatively new with regard to interventions dealing explicitly with loneliness, the literature on mindfulness has undergone a significant increase in attention and growth over the past 15 years (Dimidjian & Segal, 2015), and has been explored in relation to a number of different other variables. For example, it has been linked to smoking significantly fewer cigarettes among individuals who are interested in smoking cessation (Bowen & Marlatt, 2009); decreased responses to stressors (Arch & Craske, 2010); increased working memory and cognitive functioning (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013); and even decreased incidence of binges among those with binge eating disorder (Baer, Fischer, & Huss, 2005).

Mindfulness interventions with regard to loneliness, however, appear to be relatively rare, although Shonin & Gordon (2014) advocate for its use to help treat the condition. For example, they describe loneliness as being represented by a feeling of complete emptiness, a condition in which the individual avoids thinking about the present reality due to being unhappy with it. They suggest that through using mindfulness as a way to cope with loneliness, lonely individuals will begin to realize that the very void in which their loneliness resides is also the place where they can find contentment and happiness. Among interventions that have examined the two

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constructs, many have only done so among older adults, such as the study by Creswell et al. (2012) in which they found that elderly adults who participated in an 8-week mindfulness reduction program had significantly lower levels of loneliness than those in the control group, who experienced an increase in loneliness. Likewise, in her review, Sorrell (2015) also notes that meditation and mindfulness hold a great deal of potential with regard to decreasing issues such as loneliness among older adults. Similar results have also been seen within adults, as a mindfulness-based program was additionally found to significantly reduce loneliness among those with a social anxiety disorder (Jazaieri, Goldin, Werner, Ziv, & Goss, 2012).

The effectiveness of mindfulness has also been examined with regard to negative thoughts and cognition, which as described above, tend to occur frequently among those who are lonely (Heinrich & Gullone, 2006). Here, for example, the practice of mindfulness and related activities were found to significantly reduce the incidence of negative automatic thinking in a sample of college students (Frewen, Evans, Maraj, Dozois, & Partridge, 2008); here, they suggest that individuals with greater levels of mindfulness may have a much better ability to release any negative thoughts they are currently experiencing and therefore view them as less intrusive, consequently allowing them to experience more control over their thoughts. It may be that mindfulness is especially effective because instead of working to change an individual's negative thoughts about themselves and others, as might occur in a social-cognition intervention, it instead serves to refocus the mind not to give such thoughts any attention or consideration, which may subsequently have strong implications for reducing loneliness levels.

Mindfulness has also been implicated in rumination (Brown & Ryan, 2003; Faes & Williams, 2010), with a negative correlation existing between the two. Here, it may be that being more mindful subsequently results in individuals being better at noticing that they are engaging

in behaviors like rumination, so that they can then work to try to separate themselves from such feelings or thoughts (Faes & Williams, 2010). Likewise, mindfulness has also been associated with not only lower levels of self-consciousness, stress, and mood disturbance (Brown & Ryan, 2003), it has also been found to significantly improve negative moods (Broderick, 2005), indicating that it may have substantial implications for improving current loneliness levels among college students.

Summary of Loneliness Interventions

As can be seen, a number of interventions have been utilized in order to reduce loneliness levels among individuals, whether they are in the form of increasing social skills (e.g., Gantman et al., 2012), increasing levels of social support and interaction (e.g., Mattanah et al., 2012), cognitive-related interventions (e.g., Conoley & Garber, 1985), or working to increase levels of mindfulness (e.g., Creswell et al., 2012). Although multiple different types of interventions have been examined, a literature review reveals that the majority of such interventions have only been examined among older adults. Such a finding is also reflected in Masi et al.'s (2011) meta-analysis of loneliness studies, as the review only utilized four different studies that had been implemented in a college population; this is a gap in the literature that the current dissertation aims to help fill. Regardless of the particular population used, however, it appears that the majority of such studies have been focused solely on the individual, and how loneliness can be reduced through means such as the interventions listed above. In the next section, however, other potential ways of reducing loneliness will be additionally discussed, such as examining the helpfulness of targeting those *around* the lonely individual in reducing his or her respective levels of loneliness.

Reaching Out to Lonely Individuals

As mentioned above, the large majority of loneliness research has focused on factors and interventions relating to helping the lonely individual, whether this is through changing maladaptive coping strategies, increasing opportunities for social interaction or social support, or improving a lonely individual's social skills, among others (Masi et al., 2011). However, few studies have examined the issue of loneliness from the perspective of the non-lonely individual, such as what interventions or mechanisms can be used in order to influence non-lonely individuals to reach out to those who are experiencing feelings of isolation. Within this category, the majority of literature has focused on the use of befriending, particularly among older adults. Although such befriending studies still predominantly focus on the lonely individual, they demonstrate that individuals surrounding the lonely person can still have a significant impact upon his or her well-being and level of loneliness, as will be subsequently suggested by the second proposed study below.

Befriending

Befriending, often defined as "a relationship between two or more individuals which is initiated, supported and monitored by an agency that has defined one or more parties as likely to benefit" (Dean & Goodlad, 1998, p. 5, as cited in Lester, Mead, Graham, Gask, & Reilly, 2012) is an intervention strategy used particularly among older adults (Mulvihill, 2011). Although it was initially established in order to reduce older adult's feelings of loneliness (Masi et al., 2011), its roles have also expanded in order to help improve and maintain issues such as quality of life and mental health (Andrews, Gavin, Begley, & Brodie, 2003; Lester et al., 2012; Mulvihill, 2011). Helping to improve physical health may also be a potential benefit, as Mulvihill (2011)

indicated that befrienders may help to notice possible health conditions among older adults before they become more serious issues.

Such befriending interventions are typically implemented through the work of an external agency or third party, which works to set up a friendly relationship between a volunteer and older adult who may be socially isolated or may not have adequate sources of social support (Balaam, 2015; Mulvihill, 2011). Other programs have further expanded this initial connection, with some programs incorporating specific pairings between older adults and younger individuals, as well as utilizing technologies such as email, online access, or even telephone use in order to improve levels of interaction and support (Mulvihill, 2011). While the relationship between the befriender and individual aims to reduce feelings of social isolation, thus providing individual support, such a service often additionally helps to tie the lonely adult individual to the greater community at large, creating a sense of a community of which they are both members (Balaam, 2015).

Within this context, some studies have worked to investigate the potential benefits of befriending programs, with the great majority of studies examining these interventions being qualitative. For example, telephone interventions among older adults have appeared to be beneficial in helping to decrease levels of loneliness, as well as providing more meaning in their lives, and increasing feelings of confidence and independence (Cattan, Kime, & Bagnall, 2011; Kime, Cattan, & Bagnall, 2012). Similar results were found from the study by Andrews et al. (2003), who examined the effectiveness of a community befriending program, in which volunteers visited an older adult for one hour per week; here, they found that older adults reported positive opinions of the service and the relationships they developed, which subsequently helped to combat such feelings of social isolation. Others have found that such

befriending programs aided in helping to replenish older adult's social networks (Lester et al., 2012). Here, older adults participating in a befriending program were not only more likely to report feelings of greater autonomy, but it also helped them to feel more connected with the community at large, increasing feelings of social belonging. Some participants noted, however, that the intervention did not help increase their feelings of social support, as they felt that they would be a burden to their befriender in times of need. Finally, others have incorporated befriending services for older adults among other services and activities, such as lunch clubs or community support, which have subsequently resulted in lower feelings of loneliness (Dwyer & Hardill, 2011).

In addition, befriending programs have also been implemented among other populations, such as individuals with intellectual disabilities, as Hughes (1999) aimed to incorporate the role of befrienders among individuals living in a group home. Their intervention was not successful in substantially reducing loneliness, however, as out of the initial 10 volunteers that signed up for the program, only one remained after the four-month trial. Moreover, others have promoted befriending through additional means, such as community or national movements. For example, Milton (2000) discussed the use of a campaign in Switzerland called "La Main Tendue," (i.e., "The Outstretched Hand") an informational strategy promoted by Befriender's International. Because Switzerland has been troubled by an increase in the number of socially-isolated individuals, older adults, and suicide rates, among other factors, their campaign was focused around trying to increase the incidence of active listening among the population, in order to help reduce such issues (in addition to their usual befriending services that the program provides). Similarly, Ferguson (2012) referenced the role of the Campaign to End Loneliness in the United

Kingdom, in which efforts have been made to recognize the severity of loneliness and take efforts to work to reduce it among older adults.

While befriending programs have become more and more popular among older adults, the exact mechanisms surrounding their actual effectiveness, mechanisms, and ideal populations are still poorly understood (Balaam, 2015). For example, Lester et al. (2012) indicated that although befriending has resulted in decreases in feelings of loneliness and depression, the exact reasons behind such improvements are unclear; as a result, there is not a predominant theory that works to explain such findings. In addition, it appears that befriending programs have almost exclusively examined loneliness in older adults. In their meta-analysis on loneliness interventions, Masi et al. (2011) reaffirms this view, stating that while befriending interventions appear to lower feelings of social isolation, they have not been explicitly studied with regard to other populations, such as those with mental illness, or those in the general population. In addition, although studies have looked at the overall effects of befriending, there have not been any to date that have examined factors regarding *how* to influence individuals to befriend others around them, as compared to investigating its overall effects. As a result, more studies are needed, not only to better understand the mechanisms behind such befriending experiences, but to also understand what factors are involved in helping them to make the decision to reach out to others, particularly among other groups such as college students, who are the main focus of the present studies.

Helping Behavior

While the exact mechanisms behind befriending are unclear, there are, however, a number of other models and theories that have worked to not only increase helping behavior, but also to better understand the reasons why individuals may or may not help others around them.

Perhaps the most well-known of such examples is that of the bystander effect (e.g., Darley & Latané, 1968). According to this approach, in the event of an emergency, as the number of individuals observing the event increases, the less likely any one of them is to take action, as the responsibility for intervening to help becomes shared among all of them; here, such individuals may believe that others who are present will (or may be already) taking action to help, and as a result do not step in to aid the person in crisis. Such a finding has been replicated in a number of studies; for example, Darley & Latané (1968) examined response behaviors among individuals who believed that a fellow research participant was having a seizure. Here, individuals who believed that they were alone were significantly more likely to report the seizure, as compared to when they believed there were others available. In a different experiment, participants were subsequently seated in a waiting room, shortly after which smoke began to enter; participants who were alone again had a significantly higher response rate in reporting the smoke than individuals who were in the company of others (Latané & Darley, 1968).

In dealing with a potential crisis, Latané and Darley (1970) indicate that there are five different steps that an individual must go through, either overtly or implicitly, before helping another individual. First, an individual must *notice* the individual, or that something is happening; if they are not aware of the issue, it would not be expected that they would therefore take actions to help. Secondly, the individual must *interpret* the event as an emergency; for example, he or she must decide if the behavior or circumstances appear to be normal, ambiguous, or if a situation is occurring in which an individual is truly in need of some sort of assistance. Once these two steps have been met, the individual must then decide whether to help and assume *personal responsibility* for doing so, or that they do not want to undertake such accountability. During this step, the potential helper may evaluate how equipped he or she is to provide

assistance, if he or she thinks the individual deserves help, or, if there are others present, if such help is even needed.

If an individual then assumes personal responsibility to help for the event, they must then *decide what type of assistance* that they can provide (Latané and Darley, 1970). For example, in the case of someone who is injured, one must decide if it may be better to help in ways that are more direct, such as helping the victim, or more indirectly, through methods such as calling an ambulance. Finally, once the individual has chosen their specific course of action, they must find a way to *implement* it; continuing from the example above, they may then consider if they have a cell phone, or what supplies are available they can use to help. It is at this stage that most individuals will subsequently begin to act, and work to help the individual or to improve the situation, depending on the emergency at hand (Latané & Darley, 1970). Together, such stages illustrate the steps that each individual takes when deciding whether they will actually choose to help another person in their time of need. In order to help another individual, the person must progress through the whole series of steps either explicitly or implicitly; if he or she does not do so, then it is unlikely that such helping behavior will ultimately occur. The second study in the present dissertation will apply this model with respect to encouraging people to "help" (befriend) a lonely individual.

Summary of Befriending and Helping Behavior

While the majority of studies targeting loneliness favor approaches such as changing negative social cognitions, increasing opportunities for social support and interaction, or working to improve social skills (Masi et al., 2011), an emerging potential subtype is that of befriending. Most studies that utilize this approach have used an external agency or third party to pair volunteers with socially isolated older adults (Mulvihill, 2011) in order to help decrease levels of

loneliness and increase feelings of well-being (Andrews et al., 2003; Lester et al., 2012). Qualitative studies investigating their efficacy have typically yielded positive results, such as reports of decreased levels of loneliness (Andrews et al., 2003; Cattan et al., 2011; Dwyer & Hardill, 2011; Kime et al., 2012), or increases in social connectedness (Lester et al., 2012).

Although many studies have explicitly studied interventions that target the lonely individual, few have examined what factors influence an individual's choice in reaching out to help others who are lonely. As such, the model by Latané and Darley (1970) provides a way in which to examine helping behavior in others. Here, Latané and Darley divide an individual's likelihood of helping (in response to a crisis) into five main stages. First, the individual must notice the issue, and subsequently interpret it as an emergency. Following this, if they are to help, they must assume personal responsibility, and decide what kind of assistance they will provide, followed by implementing such behavior. By examining these stages of helping behavior, such a framework subsequently provides an excellent foundation upon which to use in setting up befriending studies among individuals, as one can break their behavior down into steps and work to influence particular stages throughout the process, as will be described below.

The Current Research

Loneliness is a far-reaching and increasingly prevalent issue in today's society (Heinrich & Gullone, 2006), and has been associated with a number of physical and mental health problems, such as depression (e.g., Lasgaard et al., 2011), lower self-esteem (e.g., Vanhalst et al., 2013), an increased risk of cardiovascular issues (e.g., Hawkley et al., 2006), or even higher mortality rates (e.g., Luo et al., 2012). Because loneliness is connected to such a large number of negative health and well-being consequences, it is important that efforts are made to reduce an individual's experience of loneliness; an effort that a number of researchers have made through

targeted approaches such as social skills training, increased social connections, or changing negative thought patterns (Masi et al., 2011). Such interventions, however, are limited in their capacity, in that the large majority have not only focused on the older adult population, but additionally have served to target only the individual who may be suffering from loneliness.

As a result of these factors, the first study of this dissertation serves to advance the literature regarding the effectiveness of several different types of loneliness interventions (e.g., changing negative thoughts, increasing mindfulness, or developing effective coping strategies) among college students, a population that also experiences high levels of loneliness (Victor & Yang, 2012). As mentioned above, because most studies investigating loneliness interventions appear to have targeted older adults, there is much less known about what may be particularly helpful in reducing loneliness among college students. Furthermore, while a number of intervention types have been utilized, with changing negative thought patterns being identified as the most effective method of helping (Masi et al., 2011), there are still new and emerging options available that may also hold significant promise, such as mindfulness interventions (Creswell et al., 2012). Because very few studies have investigated loneliness and mindfulness, particularly with regard to college students, studying the potential efficacy of such a treatment may have strong implications for reducing loneliness levels among this population. Indeed, it may be that mindfulness interventions encouraging individuals not to focus on their negative thoughts may be just as effective as those that work to modify such negative cognitions, particularly when compared against interventions that purely target behaviors such as coping strategies. By examining the efficacy of competing loneliness intervention aspects (changing one's thoughts vs. reducing the focus on one's thoughts vs. behavior-focused strategies), it is hoped that the first study will not only allow better assessment of the value of relatively new intervention methods

such as mindfulness, but also gain more insight as to what may be particularly effective among understudied groups such as college students.

In the second study, the aim will involve continuing to investigate the efficacy of loneliness interventions among college students, but doing so through a targeted approach that has not yet been investigated. As mentioned above, the focus of most loneliness interventions and studies has only been on the lonely individual and working to reduce or eliminate their feelings of loneliness. An additional method that has been utilized with increasing popularity, particularly among older adults (Mulvihil, 2011), is that of befriending, in which a volunteer is often paired with a socially-isolated older adult in order to improve their quality of life (Balaam, 2015). Although involving two individuals (the volunteer and the lonely individual), such befriending studies still primarily target only the lonely older adult. As a result, the second study aims to investigate what factors are involved in increasing the likelihood that an individual will reach out to a lonely individual. By examining three different message types (based upon Latanaé and Darley's (1970) model of helping) that will draw attention to the lonely individual, work to increase personal responsibility for helping, or additionally provide concrete actions that he or she can take, it is hoped that such a study will provide a better understanding of the most effective way in which others can be encouraged to help. Additionally, it does not appear that Latané and Darley's 1970 model regarding steps of helping has been specifically applied to a non-crisis loneliness situation before; as such, the current study also provides a new way of examining helping behavior towards lonely individuals. Finally, because such interventions have primarily been utilized among older adults, implementing the study among college students may furthermore provide a potential new way of reducing loneliness in this population.

Chapter 2 - Study 1

Overview

As described above, a number of interventions have been utilized to reduce feelings of loneliness, such as working to increase social skills, as lonely individuals have been found to have lower levels of social competence (Morón, 2014). In addition, others have tried to increase social interaction and support, in order to help the lonely individuals develop more meaningful connections (Ames et al., 2011), or change potential negative thoughts, because lonely individuals are also significantly more likely to not only have negative perceptions of themselves (Heinrich & Gullone, 2006), but also of the world and others around them. Mindfulness is an additional intervention that appears to be increasingly popular (Dimidjian & Segal, 2015), having been investigated with respect to smoking (Bowen & Marlatt, 2009), and stress (Arch & Craske, 2010), among others, with some studies suggesting it may also have positive implications for reducing loneliness (Creswell et al., 2012; Shonin & Gordon, 2014; Sorrell, 2015).

In addition, it has been shown that lonely individuals are also more likely to have poor coping strategies, with lonelier individuals being more likely to engage in more passive (Van Buskirk & Duke, 1991), submissive or hopeless coping strategies (Cecen, 2008). Furthermore, in a previous unpublished study, some of the most-frequently used coping mechanisms among students (e.g., self-distraction) were not found to be helpful in predicting lower levels of loneliness (Besse & Brannon, 2012), indicating that students may be only somewhat aware of effective coping strategies. By learning about how to cope more effectively, their levels of loneliness may subsequently be reduced.

Although the mental and physical issues surrounding loneliness appear to be well-understood, overall interventions working to reduce feelings of loneliness in individuals do not

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appear to be relatively as common. The majority of those that have been implemented, however, have focused mainly on older adults, as such a group is also particularly high in loneliness (Victor & Yang, 2012). As a result, although loneliness has often been documented among college students (Cutrona, 1982), relatively few studies in the literature have actively explored interventions to reduce it. Among those that have, for example, Aikawa (1999), Jones et al. (1982) and Seepersad (2005) found at least short term success in reducing loneliness through different methods of social skills training; when looking at social support interventions, Mattanah et al. (2012) was successful in using a support group to reduce loneliness and improve academic achievement. Others, such as Conoley and Garber (1985) were unsuccessful in reducing loneliness by reframing it as a positive experience, although other cognitive interventions, such as the research by McWhirter and Horan (1996), found that helping individuals to change social attributions, develop and maintain relationships, and increase communication skills were effective in reducing loneliness among college students. In past meta-analyses, such cognitive interventions have shown to be particularly effective (Masi et al., 2011). The efficacy of mindfulness interventions on loneliness in college students has not yet been assessed, however the technique has shown promise in reducing loneliness among older adults (Creswell et al., 2012) and those with social anxiety (Jazaieri et al., 2012) and therefore appears to show promise as a potential coping strategy. While studies have explored loneliness techniques in college students, such interventions in the literature still remain relatively infrequent. As mentioned above, the meta-analysis by Masi et al. (2011) also demonstrated this trend, as only four of the studies reviewed involved interventions used among college students.

As a result of these factors, the current study aims to help fill this gap in the literature, by examining the effectiveness of different interventions through a targeted message in order to

reduce feelings of loneliness among participants. Here, participants were exposed to one of four different interventions; the first of these consisted of a mindfulness intervention, in which participants read a message about what mindfulness is and how to practice it, and were subsequently given the opportunity to practice it for a few moments. The second type of intervention was that of changing maladaptive social cognitions; here, participants read a message regarding common negative automatic thoughts that lonely individuals may have, followed by the opportunity for them to correct some of their own potential negative thoughts. In the third group, participants read a message regarding effective coping mechanisms that can be used against loneliness, after which they were asked to apply such information and identify situations in which such coping behaviors could be used. The fourth group consisted of a control message containing general information about loneliness, followed by having participants list specific coping mechanisms they have used in the past to combat it.

By focusing on interventions such as mindfulness, changing maladaptive thoughts, and coping behaviors, loneliness reduction can be explored from three different angles. For example, in the maladaptive social cognitions group, the thoughts of loneliness were targeted, whereas with the mindfulness condition, individuals were encouraged to essentially let such thoughts go. Finally, coping with loneliness was addressed from a behavioral perspective (e.g., coping mechanisms), in order to better evaluate not only which intervention may be most effective overall, particularly in understudied populations such as lonely college students. It is also possible that individuals may have developed their own coping strategies and behaviors, but may not yet be aware of options such as mindfulness or changing maladaptive social cognitions. Because loneliness is such a common condition, whether it is through fleeting moments due to

situational factors, or more of a trait disposition, individuals have the potential to benefit from such coping mechanisms and interventions, regardless of their overall level of loneliness.

Hypotheses and Research Questions

Hypothesis 1: Participants in the mindfulness and changing maladaptive social cognitions group will have significantly higher scores regarding their attitude toward the intervention technique than those in the coping behavior or control groups.

Hypothesis 2: Participants exposed to messages regarding changing maladaptive social cognitions as well as those exposed to messages regarding mindfulness will yield significantly lower levels of loneliness at the one week time points than those in coping behavior or control group. It is expected that there will not be a significant difference in loneliness between those in the changing maladaptive social cognitions and mindfulness groups, indicating that the two are equally effective in working to treat loneliness.

Research Question: Are interventions targeting mindfulness as effective as those that work to modify negative social cognitions?

Hypothesis 3: Participants in the mindfulness, changing maladaptive social cognitions, and coping behaviors conditions will have significantly lower levels of loneliness at the one week time points compared to those in the control condition.

Research Question: Are changing factors related to cognition though interventions such as targeting mindfulness or changing maladaptive social cognitions more effective than targeting behavior?

Research Question: Which intervention (mindfulness, changing maladaptive social cognitions, coping behaviors, or control) yields the most improvement in loneliness?

Study 1: Method

Overview

As outlined below, participants took part in the current study in a classroom setting, with group sizes ranging from 1 and 6 individuals. Participants were subsequently randomly assigned to one of the four different intervention conditions, with every individual in the group being given the same intervention message, as well as completing additional study materials.

Participants

Participants for the study were recruited from undergraduate psychology courses through the Kansas State University SONA system, consisting of students who were enrolled primarily in General Psychology classes, in addition to some upper level psychology courses. All participants earned course credit for their participation. Given that the main focus of the study is centered on investigating potentially effective loneliness interventions among college students, such a sample provides an ideal group of participants with which to work.

Through data cleaning procedures (Tabachnick & Fidell, 2013), two individuals were removed from the sample due to univariate outliers, resulting in data from a total of 278 participants (70 in the mindfulness condition, 69 in the changing maladaptive social cognitions condition, 70 in the coping behaviors condition, and 69 in the control condition). Among the participants, approximately 54% were female, with an average age of 19.43 ($SD = 3.35$). The majority of participants identified as Caucasian (79.5%), followed by Hispanic (6.8%), Other (5.4%), Asian (4.7%), African American (3.2%), and Native American (.4%). Most participants in the study were also freshman (66.9%).

Although the final sample consisted of 278 individuals, follow-up responses for 176 individuals who responded within 10 days of the initial study were also obtained (44 in the

mindfulness condition, 43 in the changing maladaptive social cognitions condition, 45 in the

coping behavior condition, and 44 in the control condition). Among this subset of individuals,

approximately 58% were female, with an average age of 19.20 ($SD = 3.17$). The majority of

participants identified as Caucasian (79.5%), followed by Hispanic (5.7%), Other (5.7%), Asian

(5.7%), African American (2.8%), and Native American (.6%). Most participants also identified

as freshman (69.9%).

Materials and Measures

      Baseline levels of loneliness. The first section of the survey consisted of three different

questions assessing participants' baseline levels of loneliness, before they were exposed to the

intervention message (see Appendix A). These three questions included: "How lonely did you

feel in the past week?" (1 = *not lonely at all*, 7 = *very lonely*); "How long did the loneliness

last?" (1 = *a few minutes*, 7 = *several days*); and "How intense were your feelings of loneliness?"

(1 = *not intense at all*, 7 = *very intense*). These three questions were subsequently averaged to

create an overall composite score representing baseline levels of loneliness ($\alpha = .89$).

      Intervention conditions. Participants were also randomly assigned to receive a message

specific to one of the four conditions mentioned above, as well as an opportunity to practice (or

consider past coping strategies, in the control condition) each of the techniques in order to better

cope with feelings of loneliness (see Appendix B). It is important to note that individuals in all of

the conditions were asked to practice and apply the technique (with the exception of the control

group) and did so in the in the same amount of time; as a result, there was no technique that

required greater participant involvement than the others.

      Mindfulness message. Participants in the mindfulness condition were given a message

stating that when they feel lonely, they should acknowledge such negative feelings of isolation,

but should try to view them in a non-judgmental light (see Appendix B). For example, they were told that they should be aware that they may be feeling lonely, but they shouldn't dwell on these thoughts, let their behavior be directed by them, or try to stop thinking about it. Doing so could not only make it more difficult to eradicate such feelings of loneliness, but could also potentially make the person feel even more lonely. Instead, participants were instructed to let their feelings pass naturally out of their awareness, such as imagining their thoughts as leaves falling down from a tree, or a river floating down a stream, in order to help them remove any meaning. Participants were also informed that using this approach has helped many individuals to cope with a variety of impulses, cravings, and obsessions, and so could be a useful mechanism they could use in dealing with potential loneliness.

After reading the message, participants were then instructed to take a few minutes to think about a time when they felt lonely or to put themselves in the mindset of being lonely, and to practice the mindfulness technique, first being asked to write down their understanding of mindfulness, or any questions that they have. Once they were able to think of an example, the researcher guided them through mindfulness practice by using a script (adapted from Vinci et al., 2014) that was read aloud to the participants (see Appendix C). Here, participants were encouraged to let their thoughts pass naturally through their mind without ruminating, judging them, or acting upon them.

Changing maladaptive social cognition message. Participants in the changing maladaptive social cognition condition read a message about examples of cognitions that a lonely individual may have, such as "I don't have any friends because I'm not interesting," "There must be something wrong with me because I don't have any friends," or "She was probably just being nice to me because she needed my help," (see Appendix B). Participants

were told that although such thoughts are common, they are not helpful in reducing loneliness, and in fact, may increase the likelihood of experiencing greater levels of loneliness. Because of this, the message also showed participants different ways of reframing such negative social cognitions so that they are less detrimental to the individual and subsequent feelings of loneliness. For example, participants were shown how the original statement, "There must be something wrong with me because I don't have any friends" could instead by viewed as "Just because I am feeling lonely right now doesn't mean I don't have any friends, or that something is wrong with me. I'm an interesting person and just need to find people that share the same interests." Participants were also informed that using this technique has shown to be especially beneficial in helping to reduce levels of loneliness among individuals in previous studies.

After reading this message, participants were instructed to take a few moments to think about a time when they felt lonely, and identify some of the typical thoughts they had that came to mind. Once they had done so, they were instructed to think about how those thoughts could be reframed to potentially reduce feelings of loneliness, subsequently providing a few examples. In this way, they were able to apply the technique to their own thoughts and experiences with loneliness.

Coping behaviors. Participants in the coping behaviors group viewed a message that was focused on specific coping strategies (see Appendix B). Here, rather than focusing on cognitions, the emphasis was placed on providing participants with behavioral strategies and actions they could use to help them reduce such feelings of loneliness. For example, this message identified several different coping mechanisms to utilize when coping with loneliness, such as reaching out to others through talking to a friend, seeking information or help, helping others, even simply

reaching out to say hello to another individual, or any other activities that help create feelings of belongingness.

In order to help them to practice and apply the technique, after reading the message, participants were then instructed to take a few moments to think about a time when they felt lonely, and identify a few of the coping behaviors listed that they could implement in order to help reduce such feelings of social isolation.

Control. In the control condition, participants read general facts about loneliness, such as what loneliness is and how it is different from the experience of being alone, its prevalence, and reasons why individuals may feel lonely (see Appendix B). The message did not provide advice or suggestions about how to cope better with loneliness – only general information. After reading the control message, those in this condition were then asked to think of a time in which they were lonely, and what specific actions they took in order to cope with it. As a result, participants in the control condition did not apply any of the information that they had read about, but rather were just asked to revisit past experiences regarding feelings of loneliness.

Demographic Information. Demographic information was also assessed (see Appendix D). Here, variables such as sex, age, year in school, and ethnicity were examined.

Dependent Measures

Attitude toward the intervention technique. Participants were also asked two additional questions regarding how helpful and effective they viewed the current study to be (see Appendix D). These included questions such as "The technique I learned today will help me to cope better with loneliness," and "I feel more prepared as a result of this study to deal with any loneliness I may experience." Responses for both questions were on a 7-point Likert scale (1 =

strongly disagree to 7 = *strongly agree*). Based on these two items, a composite score was created to measure overall attitudes toward the intervention technique ($\alpha = .87$).

Follow-up loneliness assessment. To measure the effectiveness of the respective intervention messages, participants were asked to complete three questions assessing follow-up levels of loneliness at Time 2, approximately one week after completing the study (see Appendix E). Similar to the baseline assessment of loneliness, these questions consisted of: "How lonely did you feel in the past week?" (1 = *not lonely at all*, 7 = *very lonely*); "How long did the loneliness last?" (1 = *a few minutes*, 7 = *several days*); and "How intense were your feelings of loneliness?" (1 = *not intense at all*, 7 = *very intense*). These three questions were subsequently averaged to create an overall composite score for baseline levels of loneliness ($\alpha = .89$).

Procedure

Lab session. Prior to the study, in the study description, participants were informed that loneliness was a common issue, and that the current study was focused on looking at effective ways of coping with loneliness. Upon signing up for the study, participants were invited in groups into a lab setting at a scheduled time to complete the study. Group sizes for each session ranged between 1 and 6 individuals, with students having an equal chance of being randomly assigned to each of the respective intervention messages. After arriving, each participant was seated in front of a desk, where they read and signed an informed consent measure. Following this, they were then asked to complete the three-question initial loneliness assessment; after this was completed, they were presented with one of the four intervention messages (mindfulness, changing maladaptive social cognitions, coping behaviors, and control). It should be noted, however, that all participants in each group were randomly assigned to one particular condition (e.g., different participants during each time session did not receive a different message from

those around them). In order to ensure that all participants were exposed to the message, the experimenter read the intervention message aloud, while participants followed along on their respective survey packets. In the mindfulness group, participants were then led through a mindfulness exercise, in which everyone was asked to think about a time when they felt lonely, followed by practicing the technique. In the other conditions, participants were not led through any particular exercise, but were instead asked to apply the technique on the sheet of paper in front of them (e.g., writing down how to more positively reframe negative thoughts in the changing maladaptive social cognition group, or how the coping mechanisms could be applied to their own lives to reduce loneliness in the coping behaviors condition). Following this, participants were asked to complete demographic information, as well as two questions regarding their attitude toward the intervention.

Instructions for follow-up email. During the study, participants were also presented with information stating that the researchers conducting the study wanted to follow up with them at a subsequent point in time in order to assess future possible feelings of loneliness. Participants were asked to provide their email address (see Appendix F), and were told that they would receive an email in approximately one week that would each inquire about their level of loneliness at that time. In order to help motivate students to respond to the emails, students were told that if they completed the follow-up survey, they would not only receive an extra .5 research credits, but would also be placed into a drawing to win a $50 gift card. Participants were additionally informed that this information would be kept confidential, being used only for research purposes.

Distribution of intervention messages. At the close of each session, each participant received a handout of information tailored to the intervention message that they received (see

Appendix G). Those in the control group instead received a handout on general information regarding loneliness. In addition to this handout message, participants were also provided with a handout listing the primary researcher's contact information, as well as phone numbers to university and community counseling services.

Study 1: Results

Analyses Regarding Information Collected at Baseline (n = 278)

      Hypothesis 1: Attitudes toward intervention technique. Regarding Hypothesis 1, it was expected that participants given either the mindfulness or changing maladaptive social cognition message would have significantly higher scores regarding their attitude toward the intervention message than those in the coping behavior and control groups. In order to test this, a composite score was calculated from the means of two questions: "The technique I learned today will help me to cope better with loneliness," and "I feel more prepared as a result of this study to deal with any loneliness I may experience." Both questions were measured on a seven point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). A one-way ANOVA was conducted to see if there was a significant difference in the composite score for attitudes toward the intervention between each of the respective conditions, using data from all participants (n = 278). A main effect was found for condition[1] [$F(3, 274) = 5.363$, $p = .013$, partial $\eta^2 = .038$]. Here, participants in the mindfulness condition ($M = 4.77$, $SD = 1.13$) were significantly more likely to believe they were better equipped to deal with future instances of loneliness than those in the coping behavior ($M = 4.20$, $SD = 1.16$) and control ($M = 4.19$, $SD = 1.40$) conditions; see Table 1. However, there was no difference between participants in the changing maladaptive social cognitions ($M = 4.49$, $SD = 1.15$) as compared to any of the other groups. Because of this,

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[1] Results remained the same when controlling for baseline levels of loneliness.

mindfulness was the only condition found to have significantly higher scores regarding attitudes toward the intervention, resulting in the first hypothesis being partially supported.

Analyses Regarding Information Collected at Time 2 (n = 176)

While the analyses listed above utilized information from the full sample of participants, the following hypotheses are based off of the participants' follow-up responses. As a result, only data from the subset of individuals (n = 176) who completed the follow-up responses within 10 days were included in such analyses.

   Hypothesis 2 & 3: Intervention effects on follow-up loneliness. Hypothesis 2 stated that participants in the mindfulness and changing maladaptive social cognition conditions would have significantly lower levels of loneliness at follow-up than those in the coping behavior and control groups; however, no significant difference was expected between the mindfulness and changing maladaptive social cognition groups. Additionally, all message groups (mindfulness, changing maladaptive social cognitions, and coping behavior conditions) were expected to result in significantly lower loneliness levels than those in the control group (Hypothesis 3). In order to test this, a one-way ANCOVA was performed to assess potential differences among participant's follow-up levels of loneliness at Time 2 between each of the groups. Participants' baseline levels of loneliness, assessed during the initial study, were included as a covariate. Both baseline and follow-up levels of loneliness were created using a composite score based off of three questions: "How lonely did you feel in the past week?" (1 = *not lonely at all*, 7 = *very lonely*); "How long did the loneliness last?" (1 = *a few minutes*, 7 = *several days*); and "How intense were your feelings of loneliness?" (1 = *not intense at all*, 7 = *very intense*). Within the covariate (baseline levels of loneliness), no significant differences were found between baseline levels between each group; see Table 2 [$F(3, 172) = .13$, $p = .942$, $\eta^2 = .002$]. Furthermore, the ANCOVA revealed

no significant difference between message condition in follow-up loneliness levels [$F(3, 171) =$ .63, $p = .596$, $\eta^2 = .011$]; see Table 3. As a result, there were no significant differences between the mindfulness ($M = 2.39$, $SD = 1.513$), changing maladaptive social cognitions ($M = 2.35$, $SD = 1.56$), coping behaviors ($M = 2.62$, $SD = 1.37$) and control conditions ($M = 2.30$, $SD = 1.21$). Because of this, hypotheses 2 and 3 were not supported. Additionally, a t-test indicated that there were no significant differences in baseline levels of loneliness between individuals that completed the Time 2 follow-up measures and those that did not [$t(276) = -.40$, $p = .687$), indicating that loneliness levels did not likely play a role in subsequent levels of responding.

Given that most individuals were not particularly lonely, additional analyses were performed to examine potential findings among the individuals in the sample who did have more extreme levels of loneliness. Here, among those who completed the survey at Time 2, 17 individuals reported overall loneliness scores of five or greater. Again using baseline levels of loneliness as a covariate, a one-way ANCOVA was performed in order to examine whether there were any potential effects of message type. While the ANCOVA did not yield a significant main effect for message type [$F(3, 12) = 1.77$, $p = .206$], likely due to the very small sample sizes in each of the conditions, it is worth noting that there was an increase in effect size (partial $\eta^2 = .307$), indicating that had more individuals been lonely, it is likely that potential differences between coping strategies would begin to emerge.

Study 1: Summary of Results and Discussion

The primary focus of Study 1 was to examine the efficacy of different coping strategies among college students, a population that has largely been ignored with regard to coping interventions. Participants' attitudes toward the intervention technique were first assessed with regard to not only whether participants believed that the technique would help them to better

cope with loneliness, but also how prepared they felt to deal with future levels of loneliness. Here, participants in the mindfulness condition were significantly more likely to report higher ratings than all groups except those in the changing maladaptive social cognitions. Because participants in the changing maladaptive social cognitions group were not significantly different from any other groups, this resulted in the first hypothesis being only partially supported, with mindfulness standing out as the most effective strategy with regard to how well they believed it would help them to cope with and feel prepared in dealing with future experiences of loneliness. Although the changing maladaptive social cognitions message was also expected to be viewed favorably among participants, it may be that mindfulness was particularly preferred due to its additional benefits of relaxation and subsequent stress relief, a feature that may be especially appreciated by the college student population. As a result, future studies should work to further investigate the efficacy and potential additional benefits of such interventions.

As described previously, mindfulness interventions have been successful for a number of different issues, including smoking cessation (Bowen & Marlatt, 2009), better working memory (Mrazek et al., 2013) and binge eating disorders (Baer et al., 2005), among others. Given participants' interest and favorability towards the technique, such an intervention provides a solid justification for further research examining potential effects among individuals who may have greater levels of loneliness.

In addition to examining the favorability of such intervention messages, the overall potential effectiveness of different types of coping mechanisms among college students with regard to loneliness was also assessed. Among the four conditions (mindfulness, changing maladaptive social cognitions, coping behaviors and control), there were no significant differences, indicating that there was no message that stood out with regard to reducing

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subsequent feelings of loneliness, resulting in lack of support for hypotheses 2 and 3. While this may be the case, it is also important to consider that the sample was not incredibly lonely to begin with, with the 278 participants reporting an average loneliness level of 2.49 ($SD = 1.32$), with values closer to 1 representing low levels of loneliness and values closer to 7 representing high levels of loneliness. If participants were not significantly lonely during the initial study, it is reasonable to believe that their loneliness levels would not subsequently be reduced from any type of message or condition due to lack of need.

Despite this finding, however, given the increase in effect size when looking at individuals who had more extreme levels of loneliness, it is expected that had participants been more lonely, significant differences between such coping techniques would have likely surfaced. This is because such an effect size suggests that the conditions did have a real influence on subsequent overall loneliness levels, a finding that should be further explored using similar techniques among students that have significantly greater levels of loneliness.

However, even though participants were not particularly lonely, this does not mean that they were unaware of what may be potentially helpful for them during future periods of loneliness. Because loneliness is such a common experience, particularly among young adults (Victor & Yang,2012), one can speculate that the great majority of participants in the current study have experienced loneliness at one time or another during their lives. As a result, because they are likely familiar with the experience of loneliness, it is logical to assume that they would have an idea of potential methods of coping with loneliness that may be effective in the future. Because of this, the participants' favorability of the mindfulness technique in the current study provides justification for further research investigating it's efficacy and usefulness as a potential

coping strategy among not only young adults such as college students, but the general population as a whole.

In addition, although data collection did not begin until the spring semester, past research has indicated that many undergraduates, particularly freshman, tend to be especially lonely during the first few weeks of their college experience (Cutrona, 1982). This is likely to result from students adjusting to their new surroundings and working to make new friends and connections. It is possible that by their second semester such individuals have already acclimated to their new environment and have developed social networks and better coping skills, subsequently resulting in lower levels of loneliness and therefore less need for such interventions. This may especially be the case among undergraduates who have already completed their first year of school – although the current study was made up primarily of freshman (66.9%), individuals in higher year classifications still made up a substantial proportion of the participants (33.1%) which could influence the results as well. As a result, it would be beneficial for future studies to focus on college students during the times when they may be particularly susceptible to loneliness (e.g., freshman during the very beginning of the fall semester), as well as those that report feeling at least moderate levels of loneliness. Additionally, because most of the study took place during the middle to late part of the semester, participants may have been particularly busy during that time, which also would have likely reduced feelings of or focus on feelings of loneliness.

In addition, it is also important to mention that the current study was particularly focused on examining state levels of loneliness, which tend to be more fleeting experiences resulting from situational factors around the individual. In part, this is due to the way in which loneliness was measured, with participants being asked to rate how lonely they were, how long the

loneliness lasted, and how intense such feelings were *within the past week*. Had the assessment

asked questions regarding loneliness behavior over a greater period of time, one could better

assess if the individual was experiencing more consistent feelings of loneliness (i.e., trait

loneliness), or if perhaps it was more transient and situationally-based (i.e., state loneliness). As

such, it is possible that had participants been lonely in the current study, and had state versus trait

experiences of loneliness been assessed, differences may have emerged with regard to what

intervention type may have been particularly effective in reducing their particular experience

with loneliness (e.g., state vs. trait loneliness). While state loneliness may be more malleable due

to its circumstantial factors, individuals experiencing trait levels of loneliness may still have been

able to achieve the tools to help reduce their chronic loneliness experience as well.

Chapter 3 - Study 2

Overview

As described above, there are a number of models that work to explain behavior change and helping behavior among individuals, with Latané and Darley's (1970) model being one of the most popular with respect to helping behavior in emergency situations. Here, they assert that in order to provide assistance, an individual must pass through a series of five stages, including noticing the event, interpreting it as an emergency, assuming responsibility for helping, deciding what kind of aid to provide, and finally implementing such helping behavior. Although the model has been used extensively in helping behavior, it has not yet been applied to social issues such as loneliness. It should be pointed out, however, that although loneliness is not typically considered an emergency situation or crisis, using such a model provides a relevant and supported framework upon which to investigate helping behavior towards lonely individuals among college students.

Furthermore, rather than working to reduce loneliness through interventions targeting lonely individuals, other techniques have enlisted the help of volunteers, focusing on factors outside of the lonely individual that can subsequently be improved, such as through befriending. Such an increasingly popular intervention (Balaam, 2015) provides an excellent foundation upon which to apply to Latané and Darley's (1970) model of helping behavior. In past studies, befriending has typically centered around working to provide social support and interaction among socially isolated older adults in order to improve not only physical (Mulvihill, 2011) and mental well-being, but also overall quality of life (Andrews et al., 2003; Lester et al., 2012). Whether such interventions take the form of matching participants through an agency (Andrews et al.., 2003), providing support through telephone calls (Cattan et al., 2011; Kime et al., 2012),

or even through campaigns designed to increase befriending and listening behavior among the general population (Ferguson, 2012; Milton, 2000), such strategies appear to be successful in warding off feelings of loneliness. However, the exact mechanisms behind how befriending works are still unclear (Lester et al., 2012). Additionally, the majority of studies that have investigated its use have focused almost solely on socially isolated older adults; a review of the literature yielded no studies that had examined the use of befriending among younger populations such as college students with regard to loneliness.

As a result, the current study aims to help advance the research with regard to not only better understanding befriending behaviors, but also how such behaviors can be modified and implemented within a college student population, without the need for an external agency that matches lonely individuals and volunteers. Influencing others in order to reach out and befriend lonely individuals appears to be a new intervention strategy in helping to reduce levels of loneliness. As such, the current study is focused on determining how much information is needed in order to help an individual to reach out and speak to another individual when they perceive them to be lonely. By applying the loneliness intervention technique upon Latané and Darley's (1970) model, this study aims to see what type of message is most effective in making individuals reach out to lonely individuals: a message making them aware of others around them who may be lonely, a message suggesting that, in addition to noticing them, it is important for them to assume responsibility to help, or a message that additionally provides information on ways in which they can reach out.

Hypotheses and Research Questions

Hypothesis 1: Individuals exposed to the notice loneliness, assume responsibility, and decide messages will be significantly more likely to report *noticing* lonely individuals more than those in the control conditions.

Hypothesis 2: Individuals exposed to the assume responsibility and decide messages will also be significantly more likely to report *considering* helping lonely individuals than those in the control conditions.

Hypothesis 3: Individuals exposed to the decide message will be significantly more likely to actually say they *helped* lonely individuals, as compared to those in all other conditions.

Research Question: What type of message is most effective in helping individuals to reach out to those around them whom they perceive to be lonely (notice loneliness; assume responsibility; or decide to help)?

Method

Overview

As outlined below, participants completed all aspects of the study online, through Qualtrics Survey Software. As part of this, they were randomly assigned to one of the five different intervention conditions, as well as completing additional study materials.

Participants

Participants for the study were again recruited from undergraduate psychology courses through the Kansas State University SONA system, consisting of students who were enrolled primarily in General Psychology and some upper level psychology courses. All students received course credit for their participation.

The data was screened using standard data cleaning procedures (Tabachnick & Fidell, 2013), whereby two individuals were removed due to univariate outliers. Additionally, because the unique intervention message (noticing loneliness, assume responsibility, decide, control message, or no message) was an integral part of the study, the amount of time each individual spent on the message page was also recorded. In order to remove individuals who may have rushed through the study and to ensure that participants at least had a basic understanding of the message type, data from 75 participants who spent less than 25 seconds on the page were removed. Participants in one of the control groups did not receive a message, and were subsequently not timed; as a result, all individuals in this group were retained in the current analyses, leading to slightly larger sample sizes within this condition.

The final sample resulted in 316 participants across four different conditions (58 in the notice condition, 58 in the assume responsibility condition, 59 in the decide condition, 62 in the control condition, and 79 in the no message control condition). Among participants, approximately 60% were female, with an average age of 19.81 ($SD = 3.09$). The majority of participants identified as Caucasian (77.8%), followed by Hispanic (9.5%), African American (5.1%), Asian (4.4%), Other (2.9%), and Native American (.3%). Most participants in the study also identified as freshman (64.3%).

Although the final sample consisted of 316 individuals, follow-up responses for 157 individuals who responded within 10 days of the initial study were also obtained (28 in the notice condition, 29 in the assume responsibility condition, 25 in the decide condition, 33 in the control message condition, and 42 in the no message condition). Among this subset of individuals, approximately 62.4% were female, with an average age of 19.76 ($SD = 3.50$). The majority of participants identified as Caucasian (82.2%), followed by Hispanic (7.6%), Asian (3.8%), Other

(3.2%), African American (2.5%) and Native American (.6%). Most participants also identified as freshman (62.8%).

Materials and Measures

   Questions assessing factors relating likelihood of helping. In order to obtain an idea of previous baseline helping behaviors, participants were asked a number of additional questions regarding factors involved in likelihood of helping (see Appendix H). These six questions consisted of "How often have you been in situations where, in hindsight, there were other individuals around who were probably lonely?"; "In those situations, how many times did you notice someone was lonely?"; "How many times did you *consider* speaking to them?"; "How many times did you actually go over and speak to them because you thought they were lonely?"; "How often have you thought about going over but didn't, because you thought it might not go well?"; and "How often did you choose not to go over and talk to them because you believed that it wasn't your problem or responsibility?" All responses were recorded on a 7-point Likert scale (1 = *not at all*, 7 = *very often*). In addition to these six questions, in order to help mask the scale's purpose, eight other filler items were included, such as: "How often have you been in situations, where, in hindsight, there were other individuals who needed your help?"; "In the last week, how often did you watch TV with other individuals?"; "In the last week, how often did you go to a party?"; "In the last week, how often did you attend classes?"; "In the past week, how often did you *consider* helping someone?"; "In the past week, how many times did you *do* something nice for another individual?"; "In the past week, how often did you think about going over to talk to someone you didn't know, but didn't because you thought it might be awkward?"; and "In the past week, how often did you decline hanging out with another individual?" All responses were again recorded on a seven point Likert scale (1 = *not at all*, 7 = *very often*).

Intervention messages. In addition, each participant also received one of the five message conditions listed below (see Appendix I).

Noticing loneliness. Participants in the notice loneliness group read a message about how common loneliness is, typical signs and symptoms of loneliness, and common reasons why the college population typically experiences such high levels of loneliness. Because the goal of this message was to increase awareness of lonely individuals around the participant, special emphasis was placed on why it is particularly important to pay attention to individuals who are lonely (see Appendix I).

Noticing loneliness and assuming responsibility. In this condition, participants read a combination of the main focus of the previous message regarding noticing loneliness, as well as additional information about framing loneliness in others as an opportunity to intervene (see Appendix I). Here, participants were encouraged to help out those around them that they perceive to be lonely due to a number of altruistic and egoistic reasons, such as how good they would feel about themselves if they choose to help (or alternatively, how guilty they may feel if they don't), the importance of helping out fellow college students, and how it is the right thing to do. Although this message both encouraged participants to notice lonely individuals *and* assume responsibility to help, for purposes of clearness, it will subsequently be referred to only as the "assume responsibility" condition.

Noticing loneliness, assuming responsibility, deciding how to help. In the third group, participants again received information from previous messages regarding noticing loneliness and assuming responsibility, but were additionally provided with information and steps on ways to reach out to those who may be lonely (see Appendix I). For example, they were encouraged to reach out and strike up a conversation with someone who may be lonely, give them a

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compliment, or even smile or saying hello to acknowledge the individual. The message also discussed how those actions can help lonely individuals to subsequently feel less lonely. Although this message encouraged participants to notice lonely individuals, assume responsibility, *and* decide to help, for the purposes of clarity, it will be referred to only as "decide to help".

As described above, the assume responsibility and decide to help messages built upon one another. For example, participants in the assume responsibility group also received information about noticing lonely individuals; similarly, participants in the decide to help condition also received information regarding assuming responsibility and noticing lonely others. It is important to note that there were no significant differences between the length of any of the messages; when combining them, only the strongest parts of each message were used. For example, those in the assume responsibility group also received a consolidated main point of the noticing loneliness message. This helped to ensure that one message was not necessarily stronger than one another, but rather contained each of the relevant points within the word limit.

Control. Two different control messages were utilized for the current study. In one of the control messages, participants were presented with only general facts and information about loneliness (see Appendix I). In order to ensure that such a message did not serve to draw attention to loneliness, and therefore not affect awareness of lonely individuals around them, an additional control group was also utilized which received no message.

Demographic Information. Demographic information (see Appendix J) was also assessed, including variables such as sex, age, year in school, and ethnicity.

Dependent Measures

      Attitude toward intervention techniques. Participants were also asked eight additional questions regarding how helpful and effective they viewed the current technique to be, as well as how often they would employ it in the future (see Appendix J). These included "The information I learned today was an effective tool in making me more likely to notice and reach out to potentially lonely individuals"; "I am more likely to reach out to someone who is lonely as a result of this study"; and "I feel more prepared to help other lonely individuals as a result of this study." Participants were additionally asked about intended future behaviors with questions such as "I believe I will be more aware of lonely individuals around me as a result of this study"; "I will be more likely to *consider* speaking to those around me who may be lonely as a result of this study"; "As a result of this study, I will be more likely to take action the next time I see someone around me who is lonely"; "I feel as though it's my responsibility to help those who may be lonely"; and "I know what steps to take in order to reach out to a lonely individual as a result of this study." Responses for all questions were on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*).

      In addition to these questions, four other items were included. While one assessed feelings of recognition with other lonely individuals: "How much do you identify with other lonely individuals around you?" (1 = *not at all*, 7 = *very much*), the three remaining items focused on the ways in which participants might consider reaching out to others. These included: "How likely would you be to reach out to another lonely individual through speaking with them?"; "How likely would you be to reach out to another lonely individual through text messaging them?"; and "How likely would you be to reach out to another lonely individual

through contacting them on Facebook or other social media sites?" All questions were again recorded on a seven point Likert scale (1 = *very unlikely*, 7 = *very likely*).

Follow-up Befriending behavior. In the follow-up survey at Time 2, participants were asked a number of questions regarding their befriending behavior that were focused on three main areas: awareness of lonely individuals, consideration of helping other lonely individuals, and finally, actual helping behaviors (see Appendix K). For example, to assess awareness of others, individuals were asked: "Over the past week, I was more aware of individuals around me who were lonely," (1 = *not at all*, 7 = *very often*).

To assess the degree to which participants *considered* helping others, they were asked: "People can consider helping others in a number of ways. We are interested in just one of the many ways people can think about being nice. In the past week, how often did you *consider* doing something nice for someone who you thought was lonely, such as going over to speak with them?" (1 = *not at all*, 7 = *very often*). Here, participants were also asked to specify the *ways* in which they considered reaching out (e.g., speaking to them, communicating through Facebook/social media, or through text messaging).

Finally, in order to assess actual *helping* behavior, participants were asked: "People can help others in a number of ways. We are interested in just one of the many ways that people can show that they are nice. In the past week, how often did you *do* something nice for someone who you thought was lonely, such as going over and talking to them?" (1 = *not at all*, 7 = *very often*). Here, participants were again asked to specify the ways in which they actually did reach out (e.g., speaking to them, communicating through Facebook/social media, or through text messaging).

Procedure

  Online session. Prior to the study, in the study description, participants were informed that the current study was interested in looking at helping behavior among college students, and would subsequently examine common attitudes and actions towards helping individuals. Participants completed the entire study through Qualtrics Survey Software. Upon signing up for the study, participants were directed to a screen consisting of information about the study, where they read and electronically signed an informed consent measure. Following this, their likelihood of helping was assessed, followed by one of the five message interventions. Finally, participants were presented with questions regarding demographics, their attitude on the study as well as social desirability.

  Instructions for follow-up email. During the study, each participant was additionally told that the researchers conducting the study wanted to follow up with them in approximately one week, as they were interested in learning more about their interactions with individuals who may be lonely. In order to increase the likelihood of responding to the email, participants were told those who complete the follow-up survey at Time 2 would not only receive .5 extra research credits, but would additionally be placed in a drawing for a $50 gift card. As a result, participants were then asked to provide their email address (see Appendix L). Participants were additionally informed that this information would be kept confidential, being used only for research purposes. The email was sent out one week after completion of the study.

Study 2: Results

Analyses Regarding Information Collected at Baseline (n = 316)

  Baseline attitudes toward the intervention message. Using the full sample of participants, attitudes toward each of the intervention messages were assessed, to examine

whether the message had any effect on factors such as how much the participant identified with lonely individuals, to what degree they believed it was their responsibility to help lonely individuals, and whether it was an effective tool in making them notice, consider reaching out and actually reach out to lonely individuals, among others. A MANOVA was subsequently utilized to examine potential differences across all conditions, examining a total of eight different questions relating to intervention attitudes: "The information I read today was an effective tool in making me more likely to notice and reach out to potentially lonely individuals;" I am more likely to reach out to someone who is lonely"; "I feel more prepared to help other lonely individuals"; "I believe I will be more aware of lonely individuals around me"; "I will be more likely to consider speaking to those around me who may be lonely"; "I will be more likely to take action the next time I see someone around me who is lonely"; "I feel as though it's my responsibility to help those who may be lonely;" and "I know what steps to take in order to reach out to a lonely individual." All questions were measured on a seven point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The MANOVA indicated a significant effect for message [$F(32, 1122.69) = 1.61$, $p = .018$, $\eta^2 = .040$], with the means and standard deviations for each condition across all of the subsequent univariate tests listed in Table 4.

Effective tool to notice and reach out. Univariate tests showed that there was a significant difference across the five different conditions for the statement "The information I read today was an effective tool in making me more likely to notice and reach out to potentially lonely individuals," [$F(4, 311) = 4.86$, $p = .001$, partial $\eta^2 = .059$]. Here, participants in the decide condition ($M = 5.21$, $SD = 1.34$) were significantly more likely to report the message as being an effective tool than those in the control message ($M = 4.24$, $SD = 1.77$) and no message

($M = 4.19$, $SD = 1.48$) groups. No significant differences were seen regarding the notice ($M = 4.76$, $SD = 1.40$) and assume responsibility ($M = 4.53$, $SD = 1.55$) conditions.

Reaching out to lonely. A significant difference also emerged for the statement "I am more likely to reach out to someone who is lonely," [$F(4, 311) = 2.96$, $p = .020$, partial $\eta^2 = .037$]. Here, participants in the decide condition ($M = 5.02$, $SD = 1.48$) were significantly more likely to be willing to reach out than those in the no message ($M = 4.18$, $SD = 1.35$) groups. No significant differences were seen regarding the notice ($M = 4.52$, $SD = 1.17$), assume responsibility ($M = 4.53$, $SD = 1.42$), and control message ($M = 4.58$, $SD = 4.58$) groups.

Feel prepared to help. The statement "I feel more prepared to help other lonely individuals," was also significant [$F(4, 311) = 2.59$, $p = .037$, partial $\eta^2 = .032$], with individuals in the decide group ($M = 4.63$, $SD = 1.58$) continuing to report significantly higher scores than those in the no message ($M = 3.81$, $SD = 1.38$) condition. No significant differences were seen regarding the notice ($M = 4.14$, $SD = 1.42$), assume responsibility ($M = 4.10$, $SD = 1.41$), and control message ($M = 4.19$, $SD = 1.64$) conditions.

Awareness of lonely individuals. No significant differences emerged based on message for the item "I believe I will be more aware of lonely individuals around me," [$F(4, 311) = 1.75$, $p = .138$, partial $\eta^2 = .022$]. As a result, no significant differences were seen between the notice ($M = 4.69$, $SD = 1.17$), assume responsibility ($M = 4.83$, $SD = 1.37$), decide ($M = 4.83$, $SD = 1.52$), control message ($M = 4.56$, $SD = 1.63$), and no message ($M = 4.29$, $SD = 1.42$) conditions.

Consider speaking. Significant differences emerged for "I will be more likely to consider speaking to those around me who may be lonely," [$F(4, 311) = 4.26$, $p = .002$, partial $\eta^2 = .052$]. Here, those in the decide condition ($M = 5.36$, $SD = 1.27$) reported significantly higher scores than those in the notice ($M = 4.66$, $SD = 1.40$) or no message ($M = 4.37$, $SD = 1.37$) groups. No

significant differences were seen regarding the assume responsibility *(M = 4.86, SD = 1.48)* and control message *(M = 4.71, SD = 1.59)* conditions.

Taking action. Significant differences also emerged for "I will be more likely to take action the next time I see someone around me who is lonely," $[F(4, 311) = 2.61, p = .036$, partial $\eta^2 = .032]$ whereby participants in the decide group *(M = 4.97, SD = 1.25)* reported being significantly more likely to take action than those in the no message *(M = 4.20, SD = 1.35)* condition. No significant differences were seen regarding the notice *(M = 4.43, SD = 1.35)*, assume responsibility *(M = 4.47, SD = 1.49)*, and control message *(M = 4.40, SD = 1.56)* groups.

Responsibility to help. A significant effect was also found for "I feel as though it's my responsibility to help those who may be lonely," $[F(4, 311) = 3.37, p = .010$, partial $\eta^2 = .042]$. Here, those in the decide condition *(M = 4.75, SD = 1.52)* were again significantly more likely to report higher scores than those in the notice *(M = 3.86, SD = 1.46)* and no message *(M = 3.86, SD = 1.53)* conditions. No significant differences were seen regarding the assume responsibility *(M = 4.19, SD = 1.65)* and control message *(M = 4.10, SD = 1.62)* conditions.

Know steps to reach out. Finally, a significant effect emerged for "I know what steps to take in order to reach out to a lonely individual," $[F(4, 311) = 3.03, p = .018$, partial $\eta^2 = .037]$. Here, those exposed to the decide *(M = 4.76, SD = 1.37)* message reported significantly higher scores than those in the notice *(M = 3.86, SD = 1.49)* and no message *(M = 4.04, SD = 1.49)* groups. No significant differences were seen regarding the assume responsibility *(M = 4.21, SD = 1.54)* and control message *(M = 4.15, SD = 1.64)* groups.

Identification with other lonely individuals. After viewing the message, participants were also asked how much they could relate to other lonely individuals (i.e., "How much do you identify with other lonely individuals around you?"), which was measured on a seven point

Likert scale (1 = *not at all,* 7 = *very much*). Although a one-way ANOVA revealed no main effect for message type [$F(4, 311) = 1.16$, $p = .331$, $\eta^2 = .015$], bivariate correlations indicated that those who identified with lonely individuals were significantly more likely to report believing that the message was an effective tool to reach out [$r(314) = .27$, $p < .001$]; being more likely to reach out [$r(314) = .25$, $p < .001$]; feeling prepared to help [$r(314) = .26$, $p < .001$]; believing that they would be more aware of other lonely individuals [$r(314) = .36$, $p < .001$]; being more likely to consider reaching out [$r(314) = .34$, $p < .001$]; believing that they would take action in the future [$r(314) = .26$, $p < .001$]; and feeling that it was their responsibility to help [$r(314) = .22$, $p < .001$].

Baseline levels regarding preferred method of reaching out. During the initial study, participants were also asked to report how likely they would be to reach out to another individual through various means of communication through three questions: "How likely would you be to reach out to another lonely individual through speaking to them?"; "How likely would you be to reach out to another lonely individual through text messaging them?"; and "How likely would you be to reach out to another lonely individual through contacting them on Facebook or other social media sites?" All questions were measured on a seven point Likert scale (1 = *very unlikely*, 7 = *very likely*). A repeated measures ANOVA revealed a significant main effect [$F(2, 630) = 57.13$, $p = < .001$, $\eta^2 = .154$]. Here, participants were significantly *less* likely to report being likely to reach out to someone through social media *(M = 3.82, SD = 1.91)* than through speaking to them (*M = 4.65, SD = 1.37*) or text messaging them (*M = 4.84, SD = 1.69*). There was not a significant difference between speaking and text messaging (see Table 5).

Analyses Regarding Information Collected at Time 2 (n = 157)

While the analyses listed above utilized information regarding the full sample of participants, the following analyses are based off of participants' follow-up responses. As a result, only data from the subset of individuals (n = 157) who completed the follow-up responses within 10 days were included in such analyses.

      Hypothesis 1: Awareness of lonely individuals.[2] Hypothesis 1 stated that individuals who were exposed to one of the three main messages (notice loneliness, assume responsibility, or decide to help) would be significantly more likely to report *noticing* lonely individuals than those in the control message condition, as measured by the question: "In the past week, I was more <u>aware</u> of individuals around me who were lonely," (1 = *not at all*, 7 = *very often*). In order to test this hypothesis, a one-way ANCOVA was performed to assess potential differences among participant scores for awareness of lonely individuals across each of the five groups. Participants' previous scores for awareness of lonely individuals around them, assessed during the initial study, were used as a covariate. The ANCOVA found a significant effect for message type [$F(4,150) = 3.45$, $p = .010$, $\eta^2 = .084$]. Here, participants in the assume responsibility ($M = 4.07$, $SD = 1.58$) and decide ($M = 4.16$, $SD = 1.55$) conditions were significantly more likely than participants exposed to the control message ($M = 3.18$, $SD = 1.55$) to report being aware of lonely individuals around them (see Table 6). No significant differences were found in awareness between those in the notice loneliness ($M = 3.74$, $SD = 1.38$) and no message ($M = 3.48$, $SD = 1.64$) conditions, leading Hypothesis 1 to be only partially supported.

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[2] Social desirability was examined as a covariate, however the variable did not influence the results in this or any subsequent analyses.

Hypothesis 2: Consideration of reaching out to lonely individuals. Regarding Hypothesis 2, it was expected that individuals who were exposed to one of the three main messages (notice loneliness, assume responsibility, and decide to help) would be significantly more likely to *consider* helping than those in the control conditions. This was measured using the question: "People can consider helping others in a number of ways. We are interested in just one of the many ways people can think about being nice. In the past week, how often did you consider doing something nice for someone who you thought was lonely, such as going over to speak to them?" (1 = *not at all*, 7 = *very often*). In order to assess this, a one-way ANCOVA was performed to assess potential differences among participant scores regarding how often participants considered reaching out to someone around them who may have been lonely. Participants' previous scores for considering reaching out to lonely individuals around them, assessed during the initial study, were used as a covariate. The ANCOVA resulted in no significant differences between the message conditions in follow-up reports of consideration of helping [$F(4, 150) = 1.07$, $p = .375$, $\eta^2 = .028$]; see Table 7. As a result, there were no significant differences between the notice ($M = 4.22$, $SD = 1.37$), assume responsibility ($M = 4.55$, $SD = 1.40$), decide ($M = 4.84$, $SD = 1.313$), control message ($M = 4.45$, $SD = 1.68$), no message ($M = 4.62$, $SD = 1.58$) conditions. Subsequently, hypothesis 2 was not supported.

Hypothesis 3: Reaching out to lonely individuals. For the third hypothesis, it was expected that individuals exposed to the decide message would be significantly more likely to report *helping* (i.e., reaching out to) the lonely individual than those in all other conditions. This was measured by using the question: "People can help others in a number of ways. We are interested in just one of the many ways that people can show that they are nice. In the past week, how often did you <u>do</u> something nice for someone who you thought was lonely, such as going

over and talking to them?" (1 = *not at all*, 7 = *very often*). As a result, a one-way ANCOVA was utilized to examine potential differences among participant scores regarding how often participants actually reached out to another individual who may have been lonely. Participants' previous scores for reaching out to lonely individuals around them, assessed during the initial study, were used as a covariate. The ANCOVA resulted in no significant differences between the message conditions with regard to follow-up reports of reaching out [$F(4, 150 = .877, p = .479, \eta^2 = .023$]; see Table 8. As a result, there were no significant differences between the notice ($M = 3.48, SD = 1.12$), assume responsibility ($M = 3.34, SD = 1.14$), decide ($M = 3.92, SD = 1.53$), control message ($M = 3.48, SD = 1.72$) and no message ($M = 3.81, SD = 1.61$) conditions, leading to hypothesis 3 being unsupported.

Study 2: Summary of Results and Discussion

The main purpose of Study 2 was to investigate the effectiveness of potential ways of increasing befriending behavior towards lonely individuals. Baseline questions regarding attitudes surrounding the technique indicated that participants exposed to the decide message were significantly more likely to report increased intentions of helping on a number of items. For example, those in the decide condition were significantly more likely to believe that the information they read was effective in making them more likely to notice and reach out to other lonely individuals as compared to the control message and no message conditions. By providing them with key information on loneliness as well as tangible steps on how to reach out to others, this may help them to feel prepared and more competent to engage in various types of helping behavior toward loneliness, such as noticing others or actually engaging in the behavior of reaching out.

In addition, those in the decide group were also more likely to report considering speaking to lonely people, feeling as though it was their responsibility to help them, and reported knowing what steps to take in order to reach out than participants in both the no message and notice conditions. It is interesting to note that, for items such as consideration of speaking or feeling responsible, the decide message was significantly more effective than even the assume responsibility message, indicating that participants were potentially moved along the continuum, farther than those who received the message specifically targeting those behaviors. Furthermore, because the decide message contained several specific strategies on how to reach out to others, it additionally may have helped to increase feelings of knowledge and responsibility within the participant, as well as feelings of confidence in actually helping, something that just raising the issue of loneliness and the importance of noticing lonely individuals may have failed to do.

Participants in the decide condition were also significantly more likely than those *not* exposed to a message to report being likely to reach out to someone who is lonely, feel more prepared to help other lonely individuals, and take action the next time they saw someone who was lonely. Similar to above, because the decide condition listed concrete actions on ways in which to reach out, such a message appears to be effective, at least in the short term, with regard to increasing helping behavior. Participants were also asked to what degree they identified with lonely individuals around them. Here, individuals who could relate to lonely others where significantly more likely to have favorable attitudes toward not only the intervention techniques, but also toward future likelihood of helping others. As a result, future studies may additionally benefit from having participants think about their own experiences with being lonely in order to increase likelihood of future helping.

In addition to examining likelihood of future helping and favorability towards the messages, different facets of helping behavior were also assessed during the one-week follow-up. Here, participants in the assume responsibility and decide conditions were significantly more likely to report being *aware* of lonely individuals than those in the control message condition, leading to Hypothesis 1 being only partially supported. Similar to above, the decide message was significantly more effective than even the notice message, which was specifically tailored to increase awareness towards lonely individuals. Because the no message condition was not significantly different than the assume responsibility or decide messages, individuals may be responding differently to the message. For example, not having a message regarding loneliness may make the individual reflect on their own experiences of being lonely, whereas the control message may result in individuals just focusing on facts regarding loneliness and a less sympathetic experience, which may result in them not engaging in such behaviors.

Moreover, although a significant difference emerged for awareness of lonely individuals, there was not significant difference in *consideration* of helping or actual *helping* behavior itself based on message type in the follow-ups at Time 2, leading Hypotheses 2 and 3 to be unsupported. Based on such findings, it appears that participants are being moved in the right direction, but may need more direction or long-term exposure in order to have a greater influence on their behaviors.

Furthermore, the finding that the assume responsibility and decide messages were significantly more likely to increase *awareness*, yet the notice message did not, may be the result of the extremeness of the messages themselves, as compared to the participants' original attitudes. For example, the social judgment theory (Sherif & Sherif, 1967) states that there are three different position areas that messages can fall within: latitudes of acceptance, non-

commitment, or rejection. Here, latitudes of acceptance are viewpoints or messages that are very similar to the individual's original opinions; essentially these are messages that the individual currently believes and agrees with. In contrast, viewpoints that fall within the latitude of rejection are too extreme and so different from the participants' original views that they are not even considered. As a result, messages within the latitudes of acceptance and rejection tend to not be very persuasive – if the participant agrees with the message, there is no point to change his or her thoughts and behavior; if the message is too different, the participant is likely to not entertain the message at all.

Between the latitudes of acceptance and rejection, however, is the latitude of non-commitment. Messages and viewpoints within this latitude tend to conflict somewhat with the individual's opinions, but are not so different as to be automatically rejected. As a result, the social judgment theory asserts that within this latitude of non-commitment, messages that are more extreme will be more persuasive, and will therefore result in greater attitude and behavior change. In past research, for example, Bochner and Insko (1966) looked at attitude change among college students regarding the number of hours needed to sleep, with initial viewpoints centered around approximately 8 hours of sleep. Here, participants were presented with messages advocating anywhere from 0 – 8 hours of sleep from either a Nobel-prize winning physiologist (high credibility group), or a YMCA director (medium credibility group). They found that, among participants in the high credibility group, more discrepant attitudes (e.g., those advocating for less sleep), were associated with more changes in attitude, with the exception of the argument telling them they needed zero hours of sleep. For the medium credibility group, the message was effective until it advocated approximately two hours of sleep a night. These extreme views (e.g., zero hours or less than two hours, depending on the condition) likely did not result in behavior

change because they were in the participants' latitude of rejection – a view that was so extreme it failed to produce attitude change. Views that were slightly less extreme, and therefore were more likely to fall into the individual's non-commitment latitude, resulted in greater behavior change, which is consistent with the social judgment theory (Sherif & Sherif, 1967).

As such, in the current study, it is possible that, with regard to making individuals more *aware* of lonely individuals around them, the notice message may have fallen more so within participants' latitude of acceptance, and therefore did not produce a significant change. In contrast, because messages like that of assume responsibility or decide to help asked participants to invest more of their time and energy, it is possible that they may have fallen within the participants' non-commitment latitudes. As a result, these may have led to greater behavior change, which may help to explain why the decide message was particularly effective, as it was the more extreme message (i.e., asking the recipient of the message to take more action) of the two. Were participants asked to engage in even more extreme behaviors, such as inviting a lonely individual to their house, giving them their phone number, or other behaviors that involved significantly more investment and work, this would have likely resulted in no behavior or attitude change, and may have caused participants to reject the message altogether because it was too extreme. However, because the assume responsibility or decide messages are what would likely be considered reasonable requests, and may still be slightly more extreme (in that individuals may not necessarily want to engage in those behaviors), participants may be subsequently more likely to change their attitudes to reflect this, resulting in a shift towards being more aware of lonely individuals around them.

Furthermore, such results can also be explained by a compliance strategy called the "door-in-the-face" technique (Cialdini et al., 1975). Here, *after* being asked to fulfill a large

request that the individual is likely to decline, he or she will subsequently be more likely to agree to a smaller request. This effect is demonstrated in the study by Cialdini et al. (1975), who examined willingness among college students to either supervise a group of juvenile delinquents on a trip to the zoo (small request) or act as a counselor at the local juvenile detention center for at least two years (an unpaid position and extreme request). When participants were presented with only the small request to chaperone the zoo visit, only approximately 17% agreed; however, when this was prefaced by asking them the more extreme request (to which no one agreed), 50% subsequently agreed to chaperone the trip. As a result, in the current study, because working to assume responsibility for helping or encourage helping behavior could be perhaps considered more extreme requests, participants may be significantly more likely to engage in the less extreme behavior, which in this case would be noticing lonely others.

If message extremeness and the door-in-the-face technique are indeed the case, repeating the message to participants in the subsequent week would likely have a continuing effect on behavior change, as they may be more sympathetic towards lonely individuals from the start. This position could help them continue to move them towards the desired behaviors of consideration of helping and actual helping behavior itself. Initially, it was considered that in order to increase helping behavior in this way, the individual's unique stage of change would need to be targeted. Indeed, many behavior change models, specifically within fields such as health psychology, utilize this specific stage-of-change focus in order to influence participant's behaviors. Such models tend to focus more so on behaviors that may be more difficult to change, and require more involvement on the individual's part, such as smoking cessation and healthy eating.

As described above, when it comes to more complex behavior change, targeting one's specific stage of change may be particularly useful. Within health psychology, a common tool is that of the transtheoretical model, which again tends to focus more prominently upon the individual's unique stage of change. Here, for example, if an individual was trying to stop smoking, the particular message or intervention that they received would depend upon what stage they were in. If the smoker was in the precontemplation stage, in which he or she did not intend to take action within the next six months, they would likely receive a message focusing on increasing awareness about the potential health consequences of smoking (Prochaska, Redding, & Evers, 2008). If the individual was in the contemplation stage or preparation stage, in which they intended to take action in the next six months, or in the immediate future, respectively, they might be given a message that is tailored to helping them think about their lives both as smokers as well as non-smokers, and work towards helping them to clarify their values regarding the behavior and their health. Finally, individuals in the action stage, who had stopped smoking in the past six months, as well as those in the maintenance stage (those that had maintained it for longer than six months), would then be given messages to help maintain the smoking cessation. These might include techniques to help increase willpower, such as setting appropriate goals, as well as developing healthier alternative behaviors to help lay the foundation for future continued healthy behavior (e.g., continuing to not smoke).

The example above illustrates that behavior change towards many health behaviors is a complex process, and typically requires a significant level of commitment in order to garner behavior change. Using such models as an guide for the current study, most stage model proponents would likely advocate giving participants messages that are specific to the individual's current stage (e.g., those who we want to notice others should receive the notice

message, or those who we want to increase feelings of responsibility in should receive the assume responsibility message); most would likely discourage giving participants the decide message and expecting to see a change in noticing.

However, the results of the current study show that for less intensive behavior change, an individual's specific base stage may not need to be directly targeted. For example, as described above, individuals exposed to the notice condition were not significantly more likely to report noticing other individuals at the Time 2 follow-up; however those in the assume responsibility and decide conditions were. This suggests that while stage-of-change models may be more appropriate for more extreme behavior changes such as smoking cessation, presenting participants with messages targeting the final goal (e.g., reaching out to lonely individuals) may be enough to start moving them in the direction of the desired behavior, resulting in changes that may be subsequently easier to implement.

Chapter 4 - General Discussion

Summary of the Current Research

Purpose of the Current Research

  Loneliness, regardless of the population that it is occurring in, is not only an unpleasant experience, but is linked with a number of significant health problems. As described previously, it has been associated with conditions such as depression (Cacioppo, Hughes et al., 2006; Fried et al., 2015; Gan et al., 2015; Lasgaard et al., 2011; van Belijouw et al., 2014), low self-esteem (Davis et al., 1992; He et al., 2014; McWhirter, 1997; Vanhalst et al., 2013), or even physical problems such as increased cardiovascular issues (Hawkley et al., 2006; Sorkin et al., 2002; Hawkley et al., 2003) and higher mortality rates (Holt-Lunstad et al., 2010; Luo et al., 2012). As a result, it is important to work to increase research examining the effectiveness of loneliness interventions, not only to reduce such negative experiences and feelings of isolation among individuals, but to reduce the likelihood of health problems from developing, particularly in underexplored populations such as college students and young adults. Because of this, the main purpose of the current dissertation was to increase understanding of potentially effective ways of reducing loneliness in the college student population, whether it was through the form of educating individuals about effective techniques that can be implemented, or working to reduce loneliness from the perspective of the bystander. Secondary to this, the current dissertation also sought to explore what types of messages may be most effective in each situation.

  Study 1 summary. As a result, Study 1 explored such relationships by instructing college students on different techniques that they could use to reduce their own feelings of loneliness. These included a mindfulness technique in which the participant was encouraged to avoid dwelling on lonely thoughts, but rather let them flow like a river and instead focus on the

current moment. In the changing maladaptive social cognitions condition, participants were given examples of how negative thoughts regarding loneliness are not always true, and can even contribute to ongoing or future feelings of loneliness; here, they practiced different ways of rewording such negative viewpoints into more positive and realistic ones. In the coping behavior condition, participants were given different behavioral actions (e.g., reaching out to talk to someone) in order to help to reduce loneliness, whereas the control group was just given basic information about loneliness, such as its prevalence and common examples of when it may occur.

The goal of this study was to determine which type of message intervention was the best for working to reduce loneliness among college students. In addition to this, it also explored whether messages that work to target one's thoughts, such as the mindfulness or changing maladaptive social cognitions groups, were more effective than messages targeting strictly more behavioral responses, such as the coping behaviors condition. Past research has shown that changing one's social cognitions about a situation has been effective in reducing loneliness (e.g., Masi et al., 2011; McWhirter & Horan, 1996), and mindfulness has additionally shown promise in a number of different health-related behaviors as well as a few studies investigating loneliness (e.g., Arch & Craske, 2010; Baer et al., 2005; Bowen & Marlatt, 2009; Creswell et al., 2012; Mrazek et al., 2013). As a result of past literature, we hypothesized that these two conditions would result in significantly lower levels of loneliness at the Time 2 follow-up than those in the coping behavior and control condition. However, it was still expected that all conditions would result in significantly lower levels of loneliness at Time 2 than those in the control group.

The results for Study 1 indicated that, with regard to attitudes toward the intervention, participants viewed mindfulness as being the most favorable technique, with it being

significantly different than the coping behavior and control conditions; the changing maladaptive coping cognition condition, however, was not significantly different from any other group. With regard to follow-up levels of loneliness, no significant differences emerged based on condition. Nonetheless, as described above, an important factor to consider is that most participants were not significantly lonely, as participants only reported a baseline average of 2.49 ($SD = 1.32$; on a scale of 1 to 7, with higher values indicating greater levels of loneliness). Although the sample was not lonely, it is fair to assume that the great majority of them have experienced feelings of loneliness before, and therefore would have at least a general idea of what may work to help them with potential occurrences in the future. While it is surprising that participants in the changing maladaptive social cognitions group did not have significant reductions in loneliness, given that it has been particularly successful in past meta-analyses (Masi et al., 2011), the fact that the sample was not lonely may have played an influence, or perhaps it may not be most effective method in dealing with loneliness for college students. As a result, Study 1 suggests that mindfulness may hold the most promise with regard to helping individuals cope with loneliness. Such a result is consistent with past research that has found mindfulness to be helpful in reducing loneliness levels (Creswell et al., 2012; Jazaieri et al., 2012), indicating that it should be explored more as a potential coping strategy to help loneliness among college students in the future.

Study 2 summary. In Study 2, rather than focus on techniques the lonely individual could use to reduce their distress, the attention was instead shifted to individuals *around* the lonely person. Here, the goal centered around what type of message was most effective in helping the participant to 1) notice a lonely individual around them, 2) help them to consider reaching out (assume responsibility), and 3) actually reach out to someone who was lonely.

Additionally, we were also interested in applying Latané and Darley's (1970) helping model as a framework, in which an individual must pass through a series of stages in order to help (e.g., notice the event, assume responsibility for it, and decide to help, among others), to the social issue of loneliness.

In order to potentially increase helping behavior, participants were given one of five different messages, each of which built upon one another (with the exception of the control messages). For example, in the notice message, participants were encouraged to pay attention to individuals around them in order to reduce loneliness, and why it is important to be aware. In the assume responsibility condition, participants were not only reminded of the importance of being aware of lonely others, but were also given additional information in which loneliness was framed as an opportunity to intervene. Finally, in addition to receiving this same information, those given the decide message were provided with specific and tangible ways of helping others. Additionally, there were two control groups in the current study: in the control message group, individuals were provided with just general information about loneliness; in the no-message group, individuals were not given any sort of message, in order to not draw any attention to loneliness.

Because the notice, assume responsibility and decide messages each contained information stressing the importance of paying attention to lonely individuals, it was hypothesized that participants in these groups would report being not only significantly more aware, but also significantly more likely to consider helping lonely others at the Time 2 follow-up, as compared to those in the control groups. However, because only the decide condition provided distinct ideas for reaching out, it was expected that this message would be significantly different from all others with regard to actual helping behavior towards lonely individuals.

Initial favorability towards the intervention messages were also assessed, with the decide message clearly being viewed as the most effective. For example, those in the decide condition were significantly more likely to say that the message was an effective tool to make them notice and reach out, as compared to both control conditions. It was also more likely to help participants consider speaking, increase feelings of responsibility, and have an idea of what actions to take than those in the notice and no message conditions. Finally, the decide message also yielded significant differences from the no message group with regard to reaching out, feeling more prepared, and taking action next time someone is lonely. As mentioned above, befriending behaviors at the Time 2 follow-up were also assessed. Here, with regard to *noticing* lonely individuals, those in the assume responsibility and decide conditions were significantly more likely to be aware than those exposed to the control message. No further significant differences emerged between message conditions for consideration of reaching out or actual reaching out.

The results of Study 2 suggest that, at least with regard to helping behaviors such as increasing awareness (and potentially actual helping behaviors) towards lonely individuals, messages that include as much direct, relevant information, covering multiple "stages" of change, as well as including tangible steps on how to help, may be the best approach. As described above, participants in the decide condition had the distinct advantage across a number of items assessing future efficacy in ability to help out lonely others. Encouraging participants to reflect on their own experiences of loneliness may also be beneficial, as those who reported identifying with lonely individuals were also more likely to have favorable attitudes of the intervention and future efforts of helping across all message groups.

Although we initially expected that targeting an individual's stage of change would be most effective, consistent with health-oriented stage-of-change models such as the

transtheoretical model, Study 2 results indicate that in fact more extreme messages may be more effective in increasing helping-related behaviors. Here, two theories emerged that appear to be particularly relevant in increasing helping behavior: the social judgment theory and "door-in-the-face" technique. For example, the social judgment theory (Sherif & Sherif, 1967) advocates that providing participants with more extreme messages (although not too extreme as to be outright rejected, or those that are too similar to the participants' original views) will be more effective in shifting attitude. As a result, participants who were exposed to more extreme messages, such as increasing feelings of responsibility or encouraging them to reach out, were significantly more likely to be aware of lonely individuals and therefore experience a shift in attitude and helping behaviors. However, such an effect may also be the result of the "door-in-the-face" technique (Cialdini et al., 1975), whereby after being encouraged to assume responsibility for or engage in helping behaviors, smaller, less intensive actions such as being aware may seem more appealing. Regardless, the current study further suggests that, for less complex behavior changes, such as reaching out to other lonely individuals, one does not need to target a specific stage of change in order to move an individual along the continuum and result in significant differences (which, as previously discussed, may be necessary for more complex health behavior changes such as using the transtheoretical model in order to induce smoking cessation). Based on the results of Study 2, it may just be that presenting a message targeting the end goal of a behavior is enough to move the individual in the direction of that behavior.

Limitations and Suggestions for Future Research

The current research was not without limitations, however. With regard to Study 1, perhaps the most pronounced drawback was that participants were not particularly lonely. As mentioned above, participants' baseline levels of loneliness were only 2.49 (*SD* = 1.32; on a

scale of 1 to 7, with higher values indicating greater levels of loneliness). Given that the college students were not particularly lonely, subsequently evaluating the efficacy of interventions designed to reduce loneliness was difficult to achieve in such conditions. Analyses were performed in order to examine the effect of message on subsequent levels of loneliness among participants who had more extreme levels of loneliness, however, because so few were extremely lonely, there were not enough individuals in each message group to draw any significant conclusions. As mentioned previously, however, participants still reported favorable attitudes, particularly toward the mindfulness technique. Based on this, future research should not only work to examine potential interventions among college students who have greater levels of loneliness (such as among freshman during the beginning of the fall semester, when they are still transitioning to collegiate life), but also to study the effects of mindfulness in particular, as based on this study it appears to be a potentially promising technique to reduce loneliness in young adults.

In addition, although it was not assessed in the first study, it may also be particularly useful to examine the individual's unique source of loneliness, such as whether it was due, for example, to their belief that they may be a bad conversationalist, because they are transitioning to a new school, or if they are lacking opportunities to meet new people. By identifying the cause of such loneliness, it is possible that future studies can work provide techniques that are even more closely tailored to the individual to subsequently decrease loneliness.

For future studies examining loneliness, it may additionally be beneficial to provide participants with a specific definition of loneliness for them to answer subsequent questions regarding. Although not commonly done in the literature, it is possible that participants' definitions of loneliness may slightly differ from one another, which could have subsequently

influenced the findings. This is important to consider given the ever-increasing role of social media, in which an individual may have a number of friends on social media websites such as Facebook, but may not be close with many of them in real-life. As a result, because of the complex relationship between online and in-person friendships, it is possible that individuals may have varying views regarding the definition and meaning of loneliness.

The second study utilized five different types of messages, in order to assess which was most effective in increasing befriending behavior among college students. Here, participants were only presented with the message at one time point, before they moved on and continued to complete other survey items. In order to further increase exposure to the message, presentation of such messages at more than one time during the intervention may be particularly beneficial, in order to keep individuals moving along the continuum. For example, the first time participants are exposed to the message, it may make them more aware of lonely others; if they read the message again at a later time point, it may increase their feelings of responsibility toward lonely individuals, and even later, result in them fully engaging in helping behaviors. This may also be the case for Study 1 as well, as participants were only presented with the message at the initial time point in the study. In Study 1, however, in order to increase exposure to the message, participants were also given a handout of the respective message they received, however they may not have read or paid attention to the message after they were given the handout. As a result, future studies should work to employ more intensive strategies, in which participants are exposed to potential messages more often, and have more opportunities to practice and think about the potential coping strategies. By encouraging participants to become more involved in the process, it helps to ensure that they would be processing the information to a greater degree and therefore would potentially obtain more benefit from such an intervention technique.

Because both studies dealt with messages, it is also important to note that, despite our attempts to eliminate participants who did not pay attention to, listen, or read the message, some participants may not have taken the message seriously. In Study 1, we attempted to reduce this issue by reading the message aloud to participants, in addition to them simultaneously following along, however it is still possible that the individual may not have been paying attention. Subsequently in Study 2, participants' time spent on the page was also timed, which was used as a manipulation check in order to determine who rushed through the survey versus those who carefully read the message. As a result, individuals who spent less than 25 seconds reading the message were discarded from the current data set, as it was unlikely that they would have grasped the main point of the message within that time frame. However, because such information only shows how long each participant spent on the page, it is still possible that someone could spend a comparable amount of time on the page, yet did not read the message carefully, which could subsequently influence the results.

It is also important to note that participants obtained for both studies were not particularly diverse; as a result, utilizing a more diverse sample in future research could lead to increased generalizability of results. Furthermore, although the focus of the current study was on college students, such results also have limited generalizability to the current population, as such methods were utilized among college students, a group that, as a whole, tends to experience greater levels of loneliness due to the transition of starting school and developing new relationships (Ames et al., 2011; Cutrona, 1982).

Finally, future research should also work to identify potential barriers to helping that individuals may experience when noticing lonely others, considering reaching out, or actually reaching out. For example, it is possible that befrienders may not engage in such helping

behaviors because they are not sure if the individual is lonely and may not want it to be awkward, or may experience negative reactions from their peers. As a result, it is important to address common reasons regarding why individuals choose not to reach out so that messages can be created to address those obstacles to further increase helping behavior.

Importance of the Current Research

While loneliness itself has been studied extensively in past literature, few studies have examined the efficacy of different coping behaviors and interventions with regard to loneliness. As a result, the current research aims to fill some of the current gaps in the literature and advance understanding of what may be particularly effective ways of helping college students not only to cope with loneliness, but also how to get other individuals to reach out to the lonely.

As mentioned above, as a whole, there is not a significant amount of research in the literature dedicated to assessing the efficacy of loneliness interventions (Hawkley & Cacioppo, 2010). Furthermore, those that have evaluated such interventions appear to typically focus on older adults. As a result, there are few studies that have specifically examined techniques to reduce loneliness in the college student population. This finding is also demonstrated in the meta-analysis of loneliness interventions by Masi et al. (2011), who only cited four studies that investigated loneliness techniques in this target group. As a result, there is a large gap in the literature regarding how to effectively reduce loneliness in the college population. To help fill this gap and advance knowledge regarding effective potential interventions within this group, we examined the efficacy of several different messages containing different coping strategies. While the sample was not particularly lonely, the study provides good justification to examine coping mechanisms such as mindfulness, as this was viewed as the most favorable out of all strategies. Because mindfulness has shown positive results with regard to health behaviors such as smoking

cessation (Bowen & Marlatt, 2009) or working memory (Mrazek et al., 2013), but has not been utilized a great deal in investigating loneliness, such a result demonstrates that it holds promise as a potential coping strategy and justifies the development of future research to study it.

It is also worth noting that most studies examining the effectiveness of loneliness interventions tend to focus on the individual, concentrating on techniques such as increasing opportunities for social interaction, improving maladaptive coping strategies, or working to develop social skills (Masi et al., 2011). Few studies have approached loneliness reduction from the perspective of individuals *around* the lonely individual, and methodology that has utilized this has typically focused on older adults. In such cases, these befriending interventions are typically developed though an external agency that works to pair an older adult with a volunteer in order to reduce feelings of loneliness and social isolation (Balaam, 2015; Mulvihill, 2011). Furthermore, it appears that the majority of such studies in the literature have been qualitative (Andrews et al., 2003; Cattan et al, 2011; Kime et al, 2012), and therefore do not take a more quantitative approach to technique efficacy.

Because past literature has focused primarily on qualitative studies that examine efficacy of paired relationships, typically among older adults, Study 2 aimed to help advance the current literature regarding issues surrounding befriending. As a result, to the researcher's knowledge, it is not only the first study to examine befriending behaviors towards lonely others in a college student population, but also to examine the efficacy of using messages to encourage individual involvement, rather than having a volunteer sign up through an external agency. Such an intervention has a number of advantages, as it can be applied to more everyday situations in order to increase everyday helping behavior towards lonely individuals, rather than having to sign up to participate in a particular program which may be more time intensive. Additionally, it

provides another option to the repertoire of different techniques available to work to reduce loneliness levels among individuals. The current research also demonstrates the unique application of Latanaé and Darley's (1970) model of helping, showing that such a model can work well in providing a foundation for non-emergency social helping situations, such as that of loneliness. Finally, the current research also shows that when targeting such behavior changes, such as working to increase helping behavior towards others, providing individuals with a message (perhaps on several different occasions) focusing on the targeted behavior may be enough to move individuals toward the desired behavior.

Implications and Conclusions

The current research has a number of implications for not only future research regarding loneliness techniques and interventions, but also application to the real-world problem of loneliness in college students. While in Study 1, although we did not find a significant main effect for message type of subsequent follow-up levels of loneliness, the study did show that participants in the mindfulness condition were significantly more likely to feel prepared and believe the procedure would help them to cope better with loneliness. Such a result justifies future research examining the efficacy of such a technique, showing that mindfulness may indeed be particularly useful in working to reduce loneliness levels.

In Study 2, we also found that messages advocating befriending others show promise in increasing subsequent helping behaviors toward lonely individuals. For example, participants who were given all relevant information needed in order to help others (i.e., those in the decide condition) tended to consistently report feeling the most prepared to help, but were also more likely to report helping behaviors – in this case, being more aware of other lonely individuals around them. While the current study did not find significant differences with regard to

consideration or actual helping behavior one week after the intervention, had participants perhaps received a more intensive intervention, in which they were given such messages on more than one occasion, this may have resulted in greater subsequent helping behaviors. The current study shows, however, that arming individuals with knowledge of a particular issue, as well as providing specific steps to take may indeed be effective in helping them to progress toward the desired helping behavior.

Together, such studies can help us to better understand and evaluate the experience of loneliness in the college student population, as well as work to develop effective interventions to reduce feelings of loneliness. They show that interventions and practices that utilize mindfulness may be particularly useful in reducing such negative feelings. However, just teaching individuals about how to reduce their own feelings of loneliness is not the only effective method available. In addition to developing effective coping strategies, the current research shows that loneliness can also be approached from the perspective of those *around* the lonely individual. If individuals are able to work towards being aware of and reaching out to help lonely individuals around them, as well as being able to apply their own techniques to reduce loneliness, it is hoped that feelings of loneliness would decrease not only among college students, but also in the general population as a whole.

References

Aikawa, A. (1999). Experimental studies of the effects of social skills training on reducing loneliness. *The Japanese Society of Social Psychology, 14*(2), 95-105.

Andrews, G. J., Gavin, N., Begley, S., & Brodie, D. (2003). Assisting friendships, combating loneliness: Users' views on a 'befriending' scheme. *Ageing & Society, 23*, 349-362.

Arch, A. J., Craske, M. C. (2010). Laboratory stressors in clinically anxious and non-anxious individuals: The moderating role of mindfulness. *Behaviour Research & Therapy, 48*, 495-505.

Ames, M. E., Pratt, M. W., Pancer, S. M., Wintre, M. G., Polivy, J., Birnie-Lefcovitch, S., & Adams, Gerald. (2011). The moderating effects of attachment style on students' experience of a transition to university group facilitation program. *Canadian Journal of Behavioral Neuroscience, 43*(1), 1-12.

Asendorpf, J. B., & van Aken, M. A. G. (2003). Personality-relationship transaction in adolescence: Core versus surface personality characteristics. *Journal of Personality, 71*(4), 629-666,

Baer, R. A., Fischer, S., & Huss, D. B. (2005). Mindfulness and acceptance in the treatment of disordered eating. *Journal of Rational-Emotive & Cognitive Behavior Therapy, 23*(4), 281-300.

Balaam, M. C., (2015). A concept analysis of befriending. *Journal of Advanced Nursing, 71*(1), 24-34.

Barlow, M. A., Liu, S. Y., & Wrosch, C. (2015). Chronic illness and loneliness in older adulthood: The role of self-protective control strategies. *Health Psychology, 34*(8), 870-879.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal

    attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497-

    529.

Bernardon, S., Babb, K. A., Hakim-Larson, J., & Gragg, M. (2011). Loneliness, attachment, and

    the perception and use of social support in university students. *Canadian Journal of*

    Behavioural Science, 43(1), 40-51.

Besse, R., & Brannon, L. A. (2012). Loneliness, coping strategies, and their perceived

    effectiveness among college students. Manuscript in preparation.

Bochner, S., & Insko, C. A. (1966). Communicator discrepancy, source credibility, and opinion

    change. *Journal of Personality and Social Psychology, 4*(6), 614-621.

Bowen, S., & Marlatt, A. (2009). Surfing the urge: Brief mindfulness-based intervention for

    college student smokers. *Psychology of Addictive Behaviors, 23*(4), 666-671.

Brandy, J. M., Penckofer, S., Solari-Twadell, P. A., & Velsor-Friedrich, B. (2015). Factors

    predictive of depression in first-year college students. *Journal of Psychosocial Nursing,*

    53(2), 38-44.

Broderick, P. C. (2005). Mindfulness and coping with dysphoric mood: Contrasts with

    rumination and distraction. *Cognitive Therapy & Research, 29*(5), 501-510.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in

    psychological well-being. *Journal of Personality & Social Psychology, 84*(4), 822-848.

Buchholz, E. S., & Catton, R. (1999). Adolescents' perceptions of aloneness and loneliness.

    Adolescence, 34, 203-213.

Cacioppo, S., Grippo, A. J., London, S., Goossens, L., & Cacioppo, J. T. (2015). Loneliness: Clinical import and interventions. *Perspectives on Psychological Science, 10*(2), 238-249.

Cacioppo, J. T., & Hawkley, L. C. (2009). Perceived social isolation and cognition. *Trends in Cognitive Sciences, 13*(10), 447-454.

Cacioppo, J. T., Hawkley, L. C., Ernst, J. M., Burleson, M., Berntson, G. G., Nouriani, B., & Spiegel, D. (2006). Loneliness within a nomological net: An evolutionary perspective. *Journal of Research in Personality, 40*, 1054-1085.

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology & Aging, 21*(1), 140-151.

Cattan, M., Kime, N., & Bagnall, A. M. (2011). The use of telephone befriending in low level support for socially isolated older people: An evaluation. *Health & Social Care in the Community, 19*(2), 198-206.

Cecen, A. R. (2008). The effects of gender and loneliness levels on ways of coping among university students. *College Student Journal, 42*(2), 510-516.

Cialdini, R. B., Vincent, J. E., Lewis, S. K., Catalan, J., Wheeler, D., & Darby, B. L. (1975). Reciprocal concessions procedure for inducing compliance: The door-in-the-face technique. *Journal of Personality and Social Psychology, 31*(2), 206-215.

Conoley, C. W., & Garber, R. A. (1985). Effects of reframing and self-control directives on loneliness, depression, and controllability. *Journal of Counseling Psychology, 32*(1), 139-142.

Creswell, J. D., Irwin, M. R., Burklund, L. J., Lieberman, M. D., Arevalo, J. M. G., Ma, J., …
Cole, S. W. (2012). Mindfulness-based stress reduction training reduces loneliness and
pro-inflammatory gene expression in older adults: A small randomized controlled trial.
Brain, Behavior, and Immunity, 26, 1095-1101.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of
psychopathology. *Journal of Consulting Psychology 24*(4), 349-354.

Cutrona, C. E. (1982). Transition to college: Loneliness and the process of social adjustment. In
L. A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research,
and therapy* (pp. 291-309). New York: Wiley Interscience.

Darley, J. M. & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of
responsibility. *Journal of Personality & Social Psychology, 8*(4), 337-383.

Davis, S. F., Hanson, H., Edson, R., & Ziegler, C. (1992). The relationship between optimism-
pessimism, loneliness, and level of self-esteem in college students. *College Student
Journal, 26*(2), 244-247.

Dimidjian, S., & Segal, Z. V. (2015). Prospects for a clinical science of mindfulness based
intervention. *American Psychologist, 70*(7), 593-620.

DiTommaso, E., Brannen-McNulty, C., Ross, L., & Burgess, M. (2003). Attachment styles,
social skills and loneliness in young adults. *Personality & Individual Differences, 35*,
303-312.

DiTommaso, E., & Spinner, B. (1993). The development and initial validation of the social and
emotional loneliness scale for adults (SELSA). *Personality & Individual Differences,
14*(1), 127-134.

Dwyer, P. & Hardill, I. (2011). Promoting social inclusion? The impact of village services on the lives of older people living in rural England. *Ageing & Society, 31*, 243-264.

Dykstra, P. A., & Fokkema, T. (2007). Social and emotional loneliness among divorced and married men and women: Comparing the deficit and cognitive perspectives. *Basic and Applied Social Psychology, 29*(1), 1-12.

Emler, N. (1994). Gossip, reputation, and social adaption. In R. F. Goodman & A. Ben-Ze'ev (Eds.) *Good Gossip* (pp. 117-138). Lawrence, KS: University Press of Kansas.

Faes, F., & Williams, J. M. G. (2010). The relationship between mindfulness and uncontrollability of ruminative thinking. *Mindfulness, 1(*4), 199-203.

Ferguson, L. (2012). Tackling loneliness in older age – why we need action by all ages. *Quality in Ageing & Older Adults, 13*(4), 264-269.

Fitts, S. D., Sebby, R. A., & Zlokovich, M. S. (2009). Humor styles as mediators of the shyness-loneliness relationship. *North American Journal of Psychology, 11*(2), 257-272.

Frewen, P. A., Evans, E. M., Maraj, N., Dozois, D. J. A., & Partridge, K. (2008). Letting go: Mindfulness and negative automatic thinking. *Cognitive Therapy & Research, 32*, 758-774.

Fried, E. I., Bockting, C., Arjadi, R., Borsboom, D., Amshoff, M., Cramer, A. O. J., … Carr, D. (2015). From loss to loneliness: The relationship between bereavement and depressive symptoms. *Journal of Abnormal Psychology, 124*(2), 256-265.

Gan, P., Xie, Y., Duan, W., Deng, Q., & Yu, X. (2015). Rumination and loneliness independently predict six-month later depression symptoms among Chinese elderly in nursing homes. *PLoS One, 10*(9), DOI:10.1371/journal.pone.0137176

Gantman, A., Kapp, S. K., Orenski, K., & Laugeson, E. A. (2012). Social skills training for
      young adults with high functioning autism spectrum disorders: A randomized controlled
      pilot study. *Journal of Autism & Developmental Disorders, 42,* 1094-1103.

Hawkley, L. C., Burleson, M. H., Berntson, G. G., & Cacioppo, J. T. (2003). Loneliness in
      everyday life: Cardiovascular activity, psychosocial context, and health behaviors.
      Journal of Personality and Social Psychology, 85(1), 105-120.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical
      review of consequences and mechanisms. *Annals of Behavioral Medicine, 40*, 218-227.

Hawkley, L. C., Masi, C. M., Berry, J. D., & Cacioppo, J. T. (2006). Loneliness is a unique
      predictor of age-related differences in systolic blood pressure. *Psychology & Aging,
      25*(1), 152-164.

Hawkley, L. C., Preacher, K. J., & Cacioppo, J. T. (2010). Loneliness impairs daytime
      functioning but not sleep duration. *Health Psychology, 29*(2), 124-129.

Hawkley, L. C., Thisted, R. A., & Cacioppo, J. T. (2009). Loneliness predicts reduced physical
      activity: Cross sectional and longitudinal analyses. *Health Psychology, 28*(3), 354-363.

Hayes, S., Bissett, R. T., Korn, Z., Zettle, R. D., Rosenfarb, I. S., Cooper, L. D. & Grundt, A. M.
      (1999). The impact of acceptance versus control rationales on pain tolerance. *The
      Psychological Record, 49*(1), 33-47.

He, D., Shi, M., & Yi, F. (2014). Mediating effects of affect and loneliness on the relationship
      between core self-evaluation and life satisfaction among two groups of Chinese
      adolescents. *Social Indicators Research, 119*, 747-756.

Heinrich, L. M., & Gullone, E. (2006). The clinical significance of loneliness: A literature
      review. *Clinical Psychology Review, 26*, 695-718.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine, 7*(7), doi: 10.1371/journal.pmed.1000316.

Huan, V. S., Ang, R. P., Chong, W. H., & Chye, S. (2014). The impact of shyness on problematic internet use: The role of loneliness. *The Journal of Psychology: Interdisciplinary and Applied, 148*(6), 699-715.

Hughes, A. (1999). Befriending: A note of caution. *British Journal of Learning Disabilities, 27*, 88 – 92.

Jaremka, L. M., Andridge, R. R., Fagundes, C. P., Alfano, C. M., Povoski, S. P., Lipari, A. M., … Kiecolt-Glaser, J. K. (2014). Pain, depression, and fatigue: Loneliness as a longitudinal risk factor. *Health Psychology, 33*(9), 948-957.

Jazaieri, H., Goldin, P. R., Werner, K., Ziv, M., & Gross, J. J. (2012). A randomized trial of MBSR versus aerobic exercise for social anxiety disorder. *Journal of Clinical Psychology, 68*(7), 715-731.

Jones, W. H. Hobbs, S. A., & Hockenbury, D. (1982). Loneliness and social skill deficits. *Journal of Personality and Social Psychology, 42*(4), 682-689.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science & Practice, 10*(2), 144-156.

Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science, 306*, 1776-1780.

Kime, N., Cattan, M., & Bagnall, A. M. (2012). The delivery and management of telephone befriending services – whose needs are being met? *Quality in Ageing & Older Adults, 13*(3), 231-240.

King, G. A., Specht, J. A., Schultz, I., Warr-Leeper, G., Redekop, W., & Risebrough, N. (1997). Social skills training for withdrawn unpopular children with physical disabilities: A preliminary evaluation. *Rehabilitation Psychology, 42*(1), 47-60.

Kolko, D. J., Loar, L. L., & Sturnick, D. (1990). Inpatient social-cognitive skills training groups with conduct disordered and attention deficit disordered children. *Journal of Child Psychology & Psychiatry, 31*(5), 737-748.

Kong, F., & You, X. (2013). Loneliness and self-esteem as mediators between social support and life satisfaction in late adolescence. *Social Indicators Research, 110*, 271-279.

Lasgaard, M., Goossens, L., & Elklit, A. (2011). Loneliness, depressive symptomatology, and suicide ideation in adolescence: Cross-sectional and longitudinal analyses. *Journal of Abnormal Child Psychology, 39*, 137-150.

Latané, B., & Darley, J. M. (1968). Group inhibition of bystander intervention in emergencies. *Journal of Personality & Social Psychology, 10*(3), 215-221.

Latané, B., & Darley, J. M. (1970). The unresponsive bystander: Why doesn't he help? New York, NY: Meredith Corporation.

Lester, H., Mead, N., Graham, C. C., Gask, L., & Reilly, S. (2012). An exploration of the value and mechanisms of befriending for older adults in England. *Ageing & Society, 32*, 307-328.

Luhmann, M., Schonbrodt, F. D., Hawkley, L. C., & Cacioppo, J. T. (2014). Loneliness and social behaviours in a virtual social environment. *Cognition & Emotion, 29*(3), 548-558.

Luo, Y., Hawkley, L. C., Waite, L. J., & Cacioppo, J. T. (2012). Loneliness, health, and mortality in old age: A national longitudinal study. *Social Science & Medicine, 74*, 907-914.

Masi, C. M., Chen, H. Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of

    interventions to reduce loneliness. *Personality & Social Psychology Review, 15*(3), 219-

    266.

Mattanah, J. F., Brooks, L. J., Brand, B. L., Quimby, J. L., & Ayers, J. F. (2012). A social

    support intervention and academic achievement in college: Does perceived loneliness

    mediate the relationship? *Journal of College Counseling, 15*, 22-36.

McWhirter, B. T. (1997). Loneliness, learned resourcefulness, and self-esteem in college

    students. *Journal of Counseling and Development, 75*(6), 460 – 469.

McWhirter, B. T., Besett-Alesch, T. A., Horibata, J., & Gat, I. (2002). Loneliness in high risk

    adolescents: The role of coping, self-esteem, and empathy. *Journal of Youth Studies,*

    5(1), 69-84.

McWhirter, B. T., & Horan, J. J. (1996). Construct validity of cognitive-behavioral treatments

    for intimate and social loneliness. *Current Psychology, 15*(1), 42-52.

Meltzer, H., Bebbington, P., Dennis, M. S., Jenkins, R., McManus, S., & Brugha, T. S. (2013).

    Feelings of loneliness among adults with mental disorder. *Social Psychiatry and*

    Psychiatric Epidemiology, 48, 5-13.

Milton, M. (2000). Listening is everybody's business. *Crisis 21*(2), 52-54.

Morón, M. (2014). Emotion understanding, interpersonal competencies, and loneliness among

    students. Polish Psychological *Bulletin, 45*(2), 223-239.

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness

    training improves working memory capacity and GRE performance while reducing mind

    wandering. *Psychological Science, 24*(5), 776-781.

Mrazek, M. D., Smallwood, J., & Schooler, J. W. (2012). Mindfulness and mind-wandering: Finding convergence through opposing constructs. *Emotion, 12*(3), 442-448.

Mulvihill, J. (2011). Personalized befriending support for older people. *Quality in Ageing & Older Adults, 12*(3), 180-183.

Newall, N. E. G., Chipperfield, J. G., Bailis, D. S., & Stewart, T. L. (2013). Consequences of loneliness on physical activity and mortality in older adults and the power of positive emotions. *Health Psychology, 32*(8), 921-924.

Ozben, S. (2013). Social skills, life satisfaction, and loneliness in Turkish university students. *Social Behavior & Personality, 41*(2), 203-2014.

Peplau, L. A., & Perlman, D. (1982). Perspectives on loneliness. In L. A. Peplau, & D. Perlman, (Eds.), *Loneliness: A Sourcebook of Current theory, research, and therapy* (pp. 1-18). New York, NY: Wiley-Interscience.

Penning, M. J., Liu, G., & Chou, P. H. B. (2014). Measuring loneliness among middle-aged and older adults: The UCLA and de Jong Gierveld Loneliness Scales. *Social Indicators Research, 118*, 1147-1166.

Perlman, D. & Peplau, L. A. (1998). Loneliness. In H. S. Friedman (Ed.), *Encyclopedia of mental health*, (pp. 571-581). San Diego, CA: Academic Press.

Prochaska, J. O., Redding, C. A., & Evers, K. E. (2008). The transtheoretical model and stages of change. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds), *Health behavior and health education* (pp.97-121).

Riggio, R. E., Watring, K P., & Throckmorton, B. (1993). Social skills, social support, and psychosocial adjustment. *Personality and Individual Differences, 15*(3), 275-280.

Rokach, A., Orzeck, T., Moya, M. C., & Exposito, F. (2002). Causes of loneliness in North

    America and Spain. *European Psychologist, 7*(1), 70-79.

Russell, D. W., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale:

    Concurrent and discriminant validity evidence. *Journal of Personality and Social*

    Psychology, 39, 472-480.

Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, factor structure.

    Journal of Personality Assessment, 66, 20-40.

Savikko, N., Routasalo, P., Tilvis, R.S. Strandberg, T. E., Pitkala, K. H. (2005). Predictors and

    subjective causes of loneliness in an aged population. *Archives of Gerontology &*

    Geriatrics, 41, 223-233.

Seepersad, S. S. (2005). *Understanding and helping the lonely: An evaluation of the LUV*

    Program (Unpublished doctoral dissertation). University of Illinois at Urbana-

    Champaign.

Segrin, C. (1999). Social skills, stressful life events, and the development of psychosocial

    problems. *Journal of Social & Clinical Psychology, 18*(1), 14-34.

Segrin, C., Nevarez, N. Arroyo, A., & Harwood, J. (2012). Family of origin environment and

    adolescent bullying predict young adult loneliness. *The Journal of Psychology, 146*(1-2),

    119-134.

Shankar, A., McMunn, A., Banks, J., & Steptoe, A. (2011). Loneliness, social isolation, and

    behavioral and biological health indicators in older adults. *Health Psychology, 30*(4),

    377-385.

Sherif, M. & Sherif, C. W. (1967) Attitudes as the individual's own categories: The social

    judgment approach to attitude and attitude change. In C. W. Sherif & M. Sherif (Eds.),

    Attitude, ego-involvement and change (pp.105-139). New York: Wiley.

Shonin, E., & Gordon, W. V. (2014). Using mindfulness and insight to transform loneliness.

    Mindfulness, 5, 771-773.

Sladek, M. R., Doane, L. D. (2015). Daily diary reports of social connection, objective sleep, and

    the cortisol awakening response during adolescents' first year of college. *Journal of*

    Youth Adolescence, 44, 298-316.

Sorkin, D., Rook, K. S., & Lu, J. L. (2002). Loneliness, lack of emotional support, lack of

    companionship, and the likelihood of having a heart condition in an elderly sample.

    Annals of Behavioral Medicine, 24(4), 290-298.

Sorrell, J. (2015). Meditation for older adults. *Journal of Psychosocial Nursing, 53*(5), 15-19.

Stokes, J. P. (1985). The relation of social network and individual difference variables to

    loneliness. *Journal of Personality and Social Psychology, 48*(4), 981-990.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson.

Tharayil, D. P. (2012). Developing the University of the Philippines Loneliness Assessment

    Scale: A Cross-Cultural Measurement. *Social Indicators Research, 106*, 307-321.

Theeke (2009). Predictors of loneliness in U.S. adults over age sixty-five. *Archives of*

    Psychiatric Nursing, 23(5), 387-396.

Tsai, F. F., & Reis, H. T. (2009). Perceptions by and of lonely people in social networks.

    Personal Relationships, 16, 221-238.

Tsai, H. H., Tsai, Y. F., Wang, H. H., Chang, Y. C., & Chu, H. H. (2010). Videoconference

    program enhances social support, loneliness, and depressive status of elderly nursing

    home residents. *Aging & Mental Health, 14*(8), 947-954.

van Beljouw, I. M. J., van Exel, E., de Jong Gierveld, J., Comijs, H. C., Heerings, M., Stek, M.

L., & van Marwijk, H. W. J. (2014). "Being all alone makes me sad:" Loneliness in older

adults with depressive symptoms. *International Psychogeriatrics, 26*(9), 1541-1551.

Van Buskirk, A. M., & Duke, M. P. (1991). The relationship between coping style and loneliness

in adolescents: Can "sad passivity" be adaptive? *The Journal of Genetic Psychology,*

152(2), 145-157.

Vanhalst, J., Klimstra, T. A., Luyckx, K., Scholte, R. H. J., Engels, R. C. M. E., & Goossens, L.

(2012). The interplay of loneliness and depressive symptoms across adolescence:

Exploring the role of personality traits. *Journal of Youth Adolescence, 41*, 776-787.

Vanhalst, J., Luyckx, K., & Goossens, L. (2014). Experiencing loneliness in adolescence: A

matter of individual characteristics, negative peer experiences or both? *Social*

Development, 23(1), 100-118.

Vanhalst, J., Luyckx, K., Scholte, R. H. J., Engels, R. C. M. E., & Goossens, L. (2013). Low

self-esteem as a risk factor for loneliness in adolescence: Perceived – but not actual –

social acceptance as an underlying mechanism. *Journal of Abnormal Child Psychology,*

41, 1067-1081.

Van Orden, K. A., Witte, T. K., James, L. M., Castro, Y., Gordon, K. H., Braithwaite, S. R.,

Hollar, D. L., & Joiner, T. E. (2008). Suicidal ideation in college students varies across

semesters: The mediating role of belongingness. *Suicide and Life-Threatening Behavior,*

38(4), 427-435.

van Roekel, E., Goossens, L., Verhagen, M., Wouters, S., Engels, R. C. M. E., & Scholte, R. H.

J. (2013). Loneliness, affect, and adolescents' appraisals of company: An experience

sampling method study. *Journal of Research on Adolescence, 24*(2), 350-363.

Vaux, A. (1988). Social and emotional loneliness: The role of social and personal characteristics. *Personality & Social Psychology Bulletin, 14*(4), 722-734.

Victor, C. R., & Yang, K. (2012). The prevalence of loneliness among adults: A case study of the United Kingdom. *The Journal of Psychology, 146*(1-2), 85-104.

Vinci, C., Peltier, M. R., Shah, S., Kinsaul, J., Waldo, K., McVay, M. A., & Copeland, A. L. (2014). Effects of a brief mindfulness intervention on negative affect and urge to drink among college student drinkers. *Behaviour Research & Therapy, 59*, 82-93.

Vitkus, J., & Horowitz, L. M. (1987). Poor social performance of lonely people: Lacking a skill or adopting a role? *Journal of Personality & Social Psychology, 52*(6), 1266-1273.

Wei, M., Russell, D. W., Zakalik, R. A. (2005). Adult attachment, social efficacy, self-disclosure, loneliness, and subsequent depression for freshman college students: A longitudinal study. *Journal of Counseling Psychology, 52*(4), 602-614.

Weiss, R.S. (1973). Loneliness: The Experience of Emotional and Social Isolation. Cambridge, Mass: MIT Press.

Wilbert, J. R., Rupert, P. A. (1986). Dysfunctional attitudes, loneliness and depression in college students. *Cognitive Therapy and Research, 10*(1), 71-77.

Wilson, R. S., Krueger, K. R., Arnold, S. E., Schneider, J. A., Kelly, J. F., Barnes, L. L., … Bennett, D. A. (2007). Loneliness and risk of Alzheimer Disease. *Archives of General Psychiatry, 64*, 234-240.

Winningham, R. G., & Pike, N. L. (2007). A cognitive intervention to enhance institutionalized older adults' social support networks and decrease loneliness. *Aging & Mental Health, 11*(6), 716-721.

Woodhouse, S. S., Dykas, M. J., & Cassidy, J. (2011). Loneliness and peer relations in

      adolescence. *Social Development, 21*(2), 273-293.

Zakahi, W. R., & Goss, B. (1995). Loneliness and interpersonal decoding skills. *Communication*

      Quarterly, 43(1), 75-85.

Zawadzki, M. J., Graham, J. E., & Gerin, W. (2012). Rumination and anxiety mediate the effect

      of loneliness on depressed mood and sleep quality in college students. *Health*

      Psychology, 32(2), 212-222.

Zhao, J., Kong, F., & Wang, Y. (2013). The role of social support and self-esteem in the

      relationship between shyness and loneliness. *Personality and Individual Differences, 54*,

      577-581.

Appendix A - Study 1: Baseline Levels of Loneliness

Please answer the following questions using the scale provided.

1. How lonely did you feel in the past week?

1	2	3	4	5	6	7

Not Lonely At All   Very Lonely

2. How long did the loneliness last?

1	2	3	4	5	6	7

A Few Minutes   Several Days

3. How intense were your feelings of loneliness?

1	2	3	4	5	6	7

Not Intense At All   Very Intense

Appendix B - Study 1 Intervention and Control Messages

Mindfulness Message

Everyone has experienced feelings of loneliness from time to time. People can use a variety of techniques to cope with these feelings of loneliness, one of which is mindfulness. In this technique, individuals acknowledge that they may feel lonely or isolated and are aware of any negative feelings they may be having, but they don't judge or dwell on these thoughts or let their behavior be directed by them. Individuals using this technique also shouldn't try to stop thinking about or change their lonely thoughts, because it may make them feel even more lonely. Instead, the mindfulness coping strategy involves just letting their feelings pass naturally out of awareness. For example, a person might use visualization to imagine their thoughts as leaves falling down from a tree, or floating on a river down a stream, helping them to remove any meaning and float out of awareness. Research has shown that using this technique has helped a number of people to cope with things like cravings, obsessions, and negative feelings, and has a lot of potential in helping to reduce feelings of loneliness.

Please take a few moments to write down your understanding of what the mindfulness technique involves, or if you have any questions regarding how to practice mindfulness.

Now, please take a few moments to think of a time when you felt lonely, or try to put yourself in the mindset of being lonely, and the feelings and thoughts you may have during that experience.

Changing Maladaptive Social Cognition Message

Everyone has experienced feelings of loneliness from time to time. In some cases, the thoughts that individuals have may help to contribute to their feelings of loneliness. For example, an individual who is feeling lonely might have thoughts such as: "I don't have any friends because I'm not interesting," "There must be something wrong with me because I don't have any friends," or perhaps in some situations, "She was probably just being nice to me because she needed my help." Although these thoughts may be common, they may actually result in greater levels of loneliness because they aren't actually true. Instead, it's better to reframe these thoughts so that they are more realistic and subsequently helpful to the individual. For example, instead of saying "There must be something wrong with me because I don't have any friends," a lonely individual could say "Just because I am feeling lonely right now doesn't mean that I don't have any friends, or that something is wrong with me. I'm an interesting person and just need to find people that share the same interests." The technique has been found to be especially helpful in reducing levels of loneliness among individuals in past research.

Now, please take a few moments to think of a time when you felt lonely, or try to put yourself in the mindset of being lonely. Once you have done that, please write 1-2 thoughts that you might have had about yourself while feeling lonely, and how you might rephrase those to be more realistic.

Coping Behaviors Message

Everyone has experienced feelings of loneliness from time to time. However, there are many effective ways to cope with it. Because loneliness involves feeling unhappy with the quality of one's relationships, one option involves reaching out to someone for social support. For example, you might go call or visit a friend or family member. They will be happy to hear from you, and spending time with them may help you to feel less lonely and further strengthen your relationship. Another idea involves participating in activities, such as campus groups. By finding people who share your same interests, you'll have the opportunity to meet new people and cultivate friendships that you might not have otherwise had. Although reaching out to others in person is best, getting support online may be another option. For example, there are many websites that allow you to connect with others who have similar interests or concerns. Finally, helping others may also relieve your loneliness – whether you are volunteering, or even doing something as simple as opening a door for someone. Making an effort to reach out to another person through talking to friends and family, getting to know new people, or even saying hello are all behaviors that can help you to cope with any loneliness.

Now, please take a few moments to think of a time when you felt lonely, or try to put yourself in the mindset of being lonely. Once you have done that, please write about some specific possible coping behaviors, such as those listed above, that you could use to help you to manage and reduce the feelings of loneliness.

Control Message

Loneliness is very common in today's world. It is estimated that 25% of the American population has reported feeling lonely in the past two weeks, so it is something that most people have experienced at some point or another during their life. Loneliness can be found among individuals who may not have as many friends as they would like, or among those who want closer relationships with individuals around them. There are several examples of when loneliness may occur, such as moving to a new environment, having less contact with family and friends, or even things like living alone, or even just feeling stressed out. As a result, it tends to be very common among college students, since they are transitioning from living at home with their parents and being close to their high school friends, to being out on their own, making new friends and memories, and trying to learn about and discover who they are.

Now, please take a few moments to think of a time when you felt lonely, or try to put yourself in the mindset of being lonely. Once you have done that, please write about some of the ways that you try to cope with loneliness when you are feeling lonely.

Appendix C - Study 1: Mindfulness Script

Was everyone able to think of a time that they felt lonely? We're going to go through an exercise now to help you practice the mindfulness technique, so I want you to keep those thoughts and feelings in mind.

"While sitting in your chair, I want you to place your feet flat on the floor, and sit up straight. Relax your shoulders, relax your neck, and place your hands into your lap or on your knees. As you settle into a comfortable position, commit yourself to being fully awake, and fully present for the next few moments. If you feel comfortable with it, gently close your eyes. Otherwise, just look towards the floor.

Focus on tuning into the feeling of breath moving in and out of your body. Focus on the sensation of the breath moving through your nose on each in breath and each outbreath. Allow yourself to just be here in this moment, following the breathe as it comes in and goes out. Just breathe and let go. Breathe and let be.

Naturally, your mind may wonder off into thoughts of one kind or another. Take note of any thoughts as they come up. Note what's on your mind and how your body is feeling. Acknowledge these thoughts, whatever they are, without judging or evaluating them. And then just gently let them go. Bring your attention back to the breath, focusing on the feeling of breath coming in and out of your nostrils.

And each time you notice that your mind has gone somewhere else, wherever that may be, just bring your attention back to the feeling of the breath. And if the mind wanders off a thousand times, you simply bring it back a thousand times, intentionally cultivating an attitude of patience and gentleness towards yourself. This means choosing as best you can not to react to or judge any of your thoughts or feelings, impulses or perceptions, reminding yourself instead that absolutely anything that comes into the field of awareness is ok. We simply sit with it and breathe with it and observe it, staying open and awake in the present moment, right here, right now, a continual process of seeing and letting be, seeing and letting go, rejecting nothing, pursuing nothing, dwelling in stillness and in calmness as the breath moves in and out.

If you'd like, commit yourself to bringing this attitude of attention and acceptance with you throughout your day, being fully aware in the present moment, noticing any thoughts or feelings that may arise, without judging them – just being right here and right now, accepting the present moment, and accepting yourself, no matter what happens. Remember that you can always bring your focus back to your breath, back to the sensations of the present moment, to cultivate this sense of attention and acceptance."

Appendix D - Study 1 Post Message Survey (Time 1)

Please answer the following questions using the scale provided.

1. Gender:
   - □ Male
   - □ Female
   - □ Prefer not to answer

2. Age: _____

3. Year in school:
   - □ Freshman
   - □ Sophomore
   - □ Junior
   - □ Senior
   - □ Other/None of the above

4. Ethnicity:
   - □ White/Caucasian
   - □ African American/Black
   - □ Asian/Pacific Islander
   - □ Native American
   - □ Hispanic
   - □ Other

Please answer the following questions using the scale provided.

1. The technique I learned today will help me to cope better with loneliness.

	1	2	3	4	5	6	7	
   Strongly Disagree   Strongly Agree

2. I feel more prepared as a result of this study to deal with any loneliness I may experience.

	1	2	3	4	5	6	7	
   Strongly Disagree   Strongly Agree

Appendix E - Study 1: Follow-up Assessment

Please answer the following questions using the scale provided.

1. How lonely did you feel in the past week?

	1	2	3	4	5	6	7

Not Lonely At All   Very Lonely

2. How long did the loneliness last?

	1	2	3	4	5	6	7

A Few Minutes   Several Days

3. How intense were your feelings of loneliness?

	1	2	3	4	5	6	7

Not Intense At All   Very Intense

Appendix F - Study 1: Participant Email Request

The researchers of this study would like to follow up with you at a later point in time to assess future possible feelings of loneliness. In one week, you'll receive an email asking about your current levels of loneliness. If you respond to this email, you will receive not only .5 more research credits, but will also be placed into a drawing to win a $50 gift card. After receiving the email, even if you do not want to complete this follow-up survey, please respond to the email message so that we know whether we should grant you credit for only the lab portion of the study or for both the lab and follow-up survey. The information that you list below will be kept confidential by researchers and will not be used for any purpose other than research, and will not be associated with your answers to the questionnaires.

Please enter your first and last name below:

_____

Please enter your preferred email address below:

_____

Appendix G - Study 1 Handouts for Each Intervention Condition

Handout for Participants in Mindfulness Condition

Everyone has experienced feelings of loneliness from time to time. People can use a variety of techniques to cope with these feelings of loneliness, one of which is mindfulness. In this technique, individuals acknowledge that they may feel lonely or isolated and are aware of any negative feelings they may be having, but they don't judge or dwell on these thoughts or let their behavior be directed by them. Individuals using this technique also shouldn't try to stop thinking about or change their lonely thoughts, because it may make them feel even more lonely. Instead, the mindfulness coping strategy involves just letting their feelings pass naturally out of awareness. For example, a person might use visualization to imagine their thoughts as leaves falling down from a tree, or floating on a river down a stream, helping them to remove any meaning and float out of awareness. Research has shown that using this technique has helped a number of people to cope with things like cravings, obsessions, and negative feelings, and has a lot of potential in helping to reduce feelings of loneliness.

Handout for Participants in Changing Maladaptive Social Cognition Condition

Everyone has experienced feelings of loneliness from time to time. In some cases, the thoughts that individuals have may help to contribute to their feelings of loneliness. For example, an individual who is feeling lonely might have thoughts such as: "I don't have any friends because I'm not interesting," "There must be something wrong with me because I don't have any friends," or perhaps in some situations, "She was probably just being nice to me because she needed my help." Although these thoughts may be common, they may actually result in greater levels of loneliness because they aren't actually true. Instead, it's better to reframe these thoughts so that they are more realistic and subsequently helpful to the individual. For example, instead of saying "There must be something wrong with me because I don't have any friends," a lonely individual could say "Just because I am feeling lonely right now doesn't mean that I don't have any friends, or that something is wrong with me. I'm an interesting person and just need to find people that share the same interests." The technique has been found to be especially helpful in reducing levels of loneliness among individuals in past research.

Handout for Participants in Coping Behaviors Condition

Everyone has experienced feelings of loneliness from time to time. However, there are many effective ways to cope with it. Because loneliness involves feeling unhappy with the quality of one's relationships, one option involves reaching out to someone for social support. For example, you might go call or visit a friend or family member. They will be happy to hear from you, and spending time with them may help you to feel less lonely and further strengthen your relationship. Another idea involves participating in activities, such as campus groups. By finding people who share your same interests, you'll have the opportunity to meet new people and cultivate friendships that you might not have otherwise had. Although reaching out to others in person is best, getting support online may be another option. For example, there are many websites that allow you to connect with others who have similar interests or concerns. Finally, helping others may also relieve your loneliness – whether you are volunteering, or even doing

something as simple as opening a door for someone. Making an effort to reach out to another person through talking to friends and family, getting to know new people, or even saying hello are all behaviors that can help you to cope with any loneliness.

Handout for Participants in Control Condition

Loneliness is very common in today's world. It is estimated that 25% of the American population has reported feeling lonely in the past two weeks, so it is something that most people have experienced at some point or another during their life. Loneliness can be found among individuals who may not have as many friends as they would like, or among those who want closer relationships with individuals around them. There are several examples of when loneliness may occur, such as moving to a new environment, having less contact with family and friends, or even things like living alone, or even just feeling stressed out. As a result, it tends to be very common among college students, since they are transitioning from living at home with their parents and being close to their high school friends, to being out on their own, making new friends and memories, and trying to learn about and discover who they are.

Appendix H - Study 2: Likelihood of Helping

Please answer the following questions using the scale provided.

1. How often have you been in situations, where, in hindsight, there were other individuals around who were lonely?

1	2	3	4	5	6	7
Not At All						Very Often

2. In those situations, how many times did you notice someone was lonely?

1	2	3	4	5	6	7
Not At All						Very Often

3. In those situations, how many times did you *consider* speaking to them?

1	2	3	4	5	6	7
Not At All						Very Often

4. How many times did you actually go over and speak to them because you thought they were lonely?

1	2	3	4	5	6	7
Not At All						Very Often

5. How often have you thought about going over but didn't, because you thought it might not go well?

1	2	3	4	5	6	7
Not At All						Very Often

6. How often did you choose not to go over and talk to them because you believed that it was not your problem or responsibility?

1	2	3	4	5	6	7
Not At All						Very Often

7. How often have you been in situations, where, in hindsight, there were other individuals who needed your help?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

8. In the last week, how often did you watch TV with other individuals?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

9. In the last week, how often did you go to a party?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

10. In the last week, how often did you attend classes?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

11. In the past week, how often did you *consider* helping someone?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

12. In the past week, how many times did you *do* something nice for another individual?

    <div align="center">
    1   2   3   4   5   6   7
    </div>

    Not At All   Very Often

13. In the past week, how often did you think about going over to talk to someone you didn't know, but didn't because you thought it might be awkward?

	1	2	3	4	5	6	7	
Not At All								Very Often

14. In the past week, how often did you decline hanging out with another individual?

	1	2	3	4	5	6	7	
Not At All								Very Often

Appendix I - Study 2: Intervention and Control Messages

Noticing Loneliness

Loneliness is a common condition in today's world. However, it doesn't just strike older adults – it is also very common among college students. For example, individuals under the age of 25 have been found to have some of the highest rates of loneliness. This may be due in part to the transition to college life. Students may have to leave their family and high school friends and move to a new environment where they may not know many individuals and have to make new friends. Additionally, during this time many young adults are also trying to learn and grow as a person, which can also result in feelings of loneliness.

A person who is lonely may have several friends, or may be surrounded by a group of people and still feel lonely. This is because loneliness doesn't depend on the number of friendships a person has, but rather their quality. For example, a person might feel lonely if they feel like they don't have anyone to talk to, if they aren't as close to others or don't have as many meaningful connections with others as they would like. Because of this, loneliness can be a very subjective experience – one individual may be lonely in one situation, whereas another may be perfectly content with their current relationships.

Although loneliness is a common experience and happens to many college students, it is still marked by a number of negative feelings. A person who is lonely may not even say that they are feeling that way, but may instead keep those negative feelings to themselves, rather than reach out and try to talk to someone about them. Because of this, it is especially important that you are aware of the issue of loneliness and pay special attention to those around you, so that you are able to notice if someone near you may be lonely.

Assuming Responsibility

Loneliness is a common condition in today's world, especially among college students. For example, individuals under the age of 25 have some of the highest rates of loneliness. This may be due in part to the transition to college life. Students may have to leave their family and high school friends and move to a new environment where they may not know many individuals, which can result in feelings of loneliness.

Although loneliness is a common experience, it is still marked by a number of negative feelings. A person who is lonely may not even say that they are feeling that way, but may instead keep those negative feelings to themselves, rather than reach out and try to talk to someone about them. Because of this, it is especially important that you are aware of the issue of loneliness and notice individuals around you that may be lonely.

Although loneliness is a common problem, it does provide a unique opportunity to reach out and help others. If you notice or think that someone may be feeling lonely, you have the potential to make a big difference in their day by intervening to help them. By reaching out to help, you may not only help to make the person feel less lonely; you may also feel better about yourself because you tried to do something nice to help another individual. You may even have the opportunity to make a new friend. If you are concerned with the welfare of others, reaching out to those who are

lonely is a great way to make a difference and to do the right thing. If people did the right thing and made an effort to reach out to those in need, the world would be a much less lonely place.

Deciding to Help

Loneliness is a common condition, especially among college students, with individuals 25 and under having some of the highest rates. This may be due in part to the transition to college—students may leave their family and high school friends, moving to a new environment where they may not know many individuals, resulting in feelings of loneliness. A lonely person may not even say that they are feeling that way, but may instead keep those negative feelings to themselves, rather than try to talk to someone about them. Because of this, it is especially important that you are aware of the issue and notice individuals around you that may be lonely.

Although loneliness is a common problem, it does provide a unique opportunity to reach out and help others. If you notice someone who may be lonely, you have the potential to make a big difference by intervening to help. In doing so, you may not only make them feel less lonely; you may also feel better about yourself because you tried to do something nice. If you are concerned with others' welfare, reaching out to those who are lonely is a great way to make a difference and to do the right thing. If people made an effort to reach out to lonely individuals, the world would be a much less lonely place.

There are many ways to reach out to a person who might be feeling lonely. For example, you could strike up a conversation and try to get to know them, give them a compliment, or even ask a question. Reaching out doesn't even have to be a big investment - even saying something as simple as "Hello," smiling, or acknowledging the individual in some way can make a big impact, and can help to give the lonely individual a sense of belonging.

Control Group Message

Loneliness is a common condition in today's world. However, it doesn't just strike older adults – it is also very common among college students. For example, individuals under the age of 25 have been found to have some of the highest rates of loneliness. This may be due in part to the transition to college life. Students may have to leave their family and high school friends and move to a new environment where they may not know many individuals and have to make new friends. Additionally, during this time many young adults are also trying to learn and grow as a person, which can also result in feelings of loneliness.

A person who is lonely may have several friends, or may be surrounded by a group of people and still feel lonely. This is because loneliness doesn't depend on the number of friendships a person has, but rather their quality. For example, a person might feel lonely if they feel like they don't have anyone to talk to, if they aren't as close to others or don't have as many meaningful connections with others as they would like. Because of this, loneliness can be a very subjective experience – one individual may be lonely in one situation, whereas another may be perfectly content with their current relationships.

Control Group

(No message)

Appendix J - Study 2: Post Message Survey (Time 1)

Please answer the following questions using the scale provided.

1. Gender:
   - □ Male
   - □ Female
   - □ Prefer not to answer

2. Age: _____

3. Year in school:
   - □ Freshman
   - □ Sophomore
   - □ Junior
   - □ Senior
   - □ Other/None of the above

4. Ethnicity:
   - □ White/Caucasian
   - □ African American/Black
   - □ Asian/Pacific Islander
   - □ Native American
   - □ Hispanic
   - □ Other

Please answer the following questions using the scale provided.

1. How much do you identify with other lonely individuals around you?

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Strongly Disagree   Strongly Agree

2. The information I learned today was an effective tool in making me more likely to notice and reach out to potentially lonely individuals.

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Strongly Disagree   Strongly Agree

3. I am more likely to reach out to someone who is lonely.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

4. I feel more prepared to help other lonely individuals.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

5. I believe I will be more aware of lonely individuals around me.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

6. I will be more likely to *consider* speaking to those around me who may be lonely.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

7. I will be more likely to take action the next time I see someone around me who is lonely.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

8. I feel as though it's my responsibility to help those who may be lonely.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

9. I know what steps to take in order to reach out to a lonely individual.

<div align="center">

1   2   3   4   5   6   7

</div>

Strongly Disagree   Strongly Agree

10. How likely would you be to reach out to another lonely individual through speaking to them?

<div align="center">

1   2   3   4   5   6   7

</div>

Very Unlikely   Very Likely

11. How likely would you be to reach out to another lonely individual through text messaging them?

<div align="center">

1   2   3   4   5   6   7

</div>

Very Unlikely   Very Likely

12. How likely would you be to reach out to another lonely individual through contacting them on Facebook or other social media sites?

<div align="center">

1   2   3   4   5   6   7

</div>

Very Unlikely   Very Likely

Directions: Read each item and decide whether it **is true (T)** or **false (F)** for you.

_____ 1. Before voting I thoroughly investigate the qualifications of all the candidates.

_____ 2. I never hesitate to go out of my way to help someone in trouble.

_____ 3. It is sometimes hard for me to go on with my work if I am not encouraged.

_____ 4. I have never intensely disliked anyone.

_____ 5. On occasions I have had doubts about my ability to succeed in life.

_____ 6. I sometimes feel resentful when I don't get my way.

_____ 7. I am always careful about my manner of dress.

_____ 8. My table manners at home are as good as when I eat out in a restaurant.

_____ 9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.

_____ 10. On a few occasions, I have given up something because I thought too little of my ability.

_____ 11. I like to gossip at times.

_____ 12. There have been times when I felt like rebelling against people in authority even

though I knew they were right.

_____ 13. No matter who I'm talking to, I'm always a good listener.

_____ 14. I can remember "playing sick" to get out of something.

_____ 15. There have been occasions when I have taken advantage of someone.

_____ 16. I'm always willing to admit it when I make a mistake.

_____ 17. I always try to practice what I preach.

_____ 18. I don't find it particularly difficult to get along with loudmouthed, obnoxious

people.

_____ 19. I sometimes try to get even rather than forgive and forget.

_____ 20. When I don't know something I don't mind at all admitting it.

_____ 21. I am always courteous, even to people who are disagreeable.

_____ 22. At times I have really insisted on having things my own way.

_____ 23. There have been occasions when I felt like smashing things.

_____ 24. I would never think of letting someone else be punished for my wrong-doings.

_____ 25. I never resent being asked to return a favor.

_____ 26. I have never been irked when people expressed ideas very different from my own.

_____ 27. I never make a long trip without checking the safety of my car.

_____ 28. There have been times when I was quite jealous of the good fortune of others.

_____ 29. I have almost never felt the urge to tell someone off.

_____ 30. I am sometimes irritated by people who ask favors of me.

_____ 31. I have never felt that I was punished without cause.

_____ 32. I sometimes think when people have a misfortune they only got what they deserved.

_____ 33. I have never deliberately said something that hurt someone's feelings.

Appendix K - Study 2: Follow-up Assessment

Please answer the following questions based on your behavior over the past week:

1. Over the past week, how much have you thought about the current study?

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Not At All   Very Often

2. In the past week, I was more **aware** of individuals around me who were lonely.

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Not At All   Very Often

3. People can consider helping others in a number of ways. We are interested in just one of the many ways people can think about being nice. In the past week, how often did you **consider** doing something nice for someone who you thought was lonely, such as going over to speak with them?

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Not At All   Very Often

4. Please specify how you **considered** reaching out to another individual who may have been lonely during the past week (check more than one if necessary):
   - □ Speaking to them
   - □ Communicating through Facebook or similar social media site
   - □ Text Message
   - □ Other (please specify)

5. People can help others in a number of ways. We are interested in just one of the many ways people can show that they are nice. In the past week, how often did you **do** something nice for someone who you thought was lonely, such as going over and talking to them?

   | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
   Not At All   Very Often

6. Please specify how you **<u>reached out</u>** to another individual who may have been lonely during the past week (check more than one if necessary):
   □ Speaking to them
   □ Communicating through Facebook or similar social media site
   □ Text Message
   □ Other (please specify)

Appendix L - Study 2: Email Request

The researchers of this study would like to follow up with you at a later point in time regarding potential interactions with others. In approximately one week, you'll receive an email message asking about your interactions with individuals. If you respond to this email, you will receive not only .5 more research credits, but will also be placed into a drawing to win a $50 gift card. After receiving the email, even if you do not want to complete the follow-up survey, please respond to the email so that we know whether we should grant you credit for only the initial study or for both the initial study and follow-up survey. The information that you list below will be kept confidential by researchers and will not be used for any purpose other than research.

Please enter your preferred email address below:

Appendix M - IRB Approval for Study 1

KANSAS STATE | University Research Compliance Office
UNIVERSITY

TO: Laura Brannon   Proposal Number: 8071
          Psychological Sciences
          492 Bluemont

FROM: Rick Scheidt, Chair
          Committee on Research Involving Human Subjects

DATE: 01/01/2016

RE: Approval of Proposal Entitled, "Coping with Loneliness."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for <u>one year</u> from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: 01/01/2016

EXPIRATION DATE: 01/01/2017

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated "**continuing review**" of the research. Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is <u>not</u> granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

    ☒   There is no more than minimal risk to the subjects.
    ☐   There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced post-approval monitoring may be performed during the course of this approval period by URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB and / or the URCO.

Appendix N - IRB Approval for Study 1 Modification

KANSAS STATE | University Research Compliance Office
U N I V E R S I T Y

TO: Laura Brannon
Psychological Sciences
492 Bluemont

FROM: Rick Scheidt, Chair
Committee on Research Involving Human Subjects

DATE: 02/25/2016

RE: Proposal #8071.1, entitled "Coping with Loneliness."

MODIFICATION OF IRB PROTOCOL #8071, ENTITLED, "Coping with Loneliness"

EXPIRATION DATE: 01/01/2016

The Committee on Research Involving Human Subjects (IRB) has reviewed and approved the request identified above as a modification of a previously approved protocol. **Please note that the original expiration remains the same.**

All approved IRB protocols are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced in-progress reviews may also be performed during the course of this approval period by a member of the University Research Compliance Office staff. Unanticipated adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB, and / or the URCO

It is important that your human subjects activity is consistent with submissions to funding / contract entities. It is your responsibility to initiate notification procedures to any funding / contract entity of any changes in your activity that affects the use of human subjects.

203 Fairchild Hall, Lower Mezzanine, 1601 Vattier St., Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278 | k-state.edu/research/comply | comply@ksu.edu

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Appendix O - IRB Approval for Study 2

KANSAS STATE
U N I V E R S I T Y | University Research Compliance Office

TO: Laura Brannon   Proposal Number: 8072
             Psychological Sciences
             492 Bluemont

FROM: Rick Scheidt, Chair
             Committee on Research Involving Human Subjects

DATE: 01/01/2016

RE: Approval of Proposal Entitled, "Attitudes Towards Helping Others."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for <u>one year</u> from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: 01/01/2016

EXPIRATION DATE: 01/01/2017

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated "**continuing review**" **of the research.** Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is <u>not</u> granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

      ☒   There is no more than minimal risk to the subjects.
      ☐   There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced post-approval monitoring may be performed during the course of this approval period by URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB and / or the URCO.

203 Fairchild Hall, Lower Mezzanine, 1601 Vattier St., Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278 | k-state.edu/research/comply | comply@ksu.edu

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Table 1

Study 1 means and standard deviations for the one-way Analysis of Variance, examining attitudes toward the coping technique among participants at Time 1 between the four conditions (mindfulness, changing maladaptive social cognitions, coping behaviors, and control); Time 1

Condition	*M*	*SD*
Mindfulness (n = 70)	4.77[a]	1.13
Changing Maladaptive Social Cognitions (n = 69)	4.49[ab]	1.15
Coping Behaviors (n = 70)	4.20[b]	1.16
Control (n = 69)	4.19[b]	1.40
Total (n = 278)	4.41	1.23

Note: Means in different columns with different subscripts differ significantly from one another. Two items were used in order to create the overall composite score:

"The technique I learned today will help me to cope better with loneliness."

"I feel more prepared as a result of this study to deal with any loneliness I may experience."

Both questions were recorded on a seven point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Higher scores for the composite variable indicate more favorable attitudes of the technique; the composite score was also on a seven point Likert scale.

Table 2

*Study 1 means and standard deviations for the one-way Analysis of Variance, examining the composite score Time 1 **baseline** levels of loneliness among participants who completed follow-up measures between the four conditions (mindfulness, changing maladaptive social cognitions, coping behaviors, and control); Time 1*

Condition	*M*	*SD*
Mindfulness (n = 44)	2.45[a]	1.39
Changing Maladaptive Social Cognitions (n = 43)	2.58[a]	1.27
Coping Behaviors (n = 45)	2.58[a]	1.34
Control (n = 44)	2.45[a]	1.30
Total (n = 176)	2.52	1.32

Note: Means in different columns with different subscripts differ significantly from one another. Three items were used in order to calculate the overall baseline composite score for loneliness, each using a seven point Likert scale:

"How lonely did you feel in the past week?" (1 = *not lonely at all*, 7 = *very lonely*)

"How long did the loneliness last?" (1 = *a few minutes*, 7 = *several days*)

"How intense were your feelings of loneliness?" (1 = *not intense at all*, 7 = *very intense*)

Higher scores for the composite variable indicated greater levels of loneliness at Time 1; the composite score was also on a seven point Likert scale. Such baseline levels of loneliness listed are only reported among participants who completed the subsequent follow up measures.

Table 3

*Study 1 means and standard deviations for the one-way Analysis of Covariance, examining the composite score for **Time 2** levels of loneliness among participants who completed follow-up measures between the four conditions (mindfulness, changing maladaptive social cognitions, coping behaviors, and control); Time 2*

Condition	*M*	*SD*
Mindfulness (n = 44)	2.39[a]	1.51
Changing Maladaptive Social Cognitions (n = 43)	2.35[a]	1.56
Coping Behaviors (n = 45)	2.62[a]	1.37
Control (n = 44)	2.30[a]	1.21
Total (n = 176)	2.41	1.41

Note: Means in different columns with different subscripts differ significantly from one another. Three items were used in order to calculate the overall follow-up score for loneliness, each using a seven point Likert scale:

"How lonely did you feel in the past week?" (1 = *not lonely at all*, 7 = *very lonely*)

"How long did the loneliness last?" (1 = *a few minutes*, 7 = *several days*)

"How intense were your feelings of loneliness?" (1 = *not intense at all*, 7 = *very intense*)

Higher scores indicate greater levels of loneliness among participants at the Time 2 follow-up; the composite score was also on a seven point Likert scale.

Table 4

Study 2 means and standard deviations for the Multivariate Analysis of Variance, examining several questions assessing attitudes toward the intervention message among participants at Time 1 between the five different conditions (notice, assume responsibility, decide to help, control message, and no message); Time 1

Item	Notice (n = 58)	Assume Responsibility (n = 58)	Decide (n = 59)	Control Message (n = 62)	No Message (n = 79)	Total (n = 316)
"The information I read today was an effective tool in making me more likely to notice and reach out to potentially lonely individuals."	4.76[ac] (1.39)	4.53[ac] (1.55)	5.21[a] (1.34)	4.24[bc] (1.77)	4.19[bc] (1.48)	4.56 (1.55)
"I am more likely to reach out to someone who is lonely."	4.52[ab] (1.17)	4.53[ab] (1.42)	5.02[a] (1.48)	4.58[ab] (1.61)	4.18[b] (1.35)	4.54 (1.43)
"I feel more prepared to help other lonely individuals."	4.14[ab] (1.42)	4.10[ab] (1.41)	4.63[a] (1.58)	4.19[ab] (1.64)	3.81[b] (1.38)	4.15 (1.50)
"I believe I will be more aware of lonely individuals around me."	4.69[a] (1.17)	4.83[a] (1.37)	4.83[a] (1.52)	4.56[a] (1.63)	4.29[a] (1.42)	4.62 (1.44)

"I will be more likely to consider speaking to those around me who may be lonely."	4.66[b] (1.40)	4.86[ab] (1.48)	5.36[a] (1.27)	4.71[ab] (1.59)	4.37[b] (1.37)	4.76 (1.45)
"I will be more likely to take action the next time I see someone around me who is lonely."	4.43[ab] (1.35)	4.47[ab] (1.49)	4.97[a] (1.25)	4.40[ab] (1.56)	4.20[b] (1.35)	4.47 (1.42)
"I feel as though it's my responsibility to help those who may be lonely."	3.86[b] (1.46)	4.19[ab] (1.65)	4.75[a] (1.52)	4.10[ab] (1.62)	3.86[b] (1.53)	4.13 (1.58)
"I know what steps to take in order to reach out to a lonely individual."	3.86[b] (1.49)	4.21[ab] (1.54)	4.76[a] (1.37)	4.15[ab] (1.64)	4.04[b] (1.49)	4.19 (1.53)

Note: Values in parentheses are standard deviations. Means in different columns with different subscripts differ significantly from one another. All questions were measured on a seven point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*).

Table 5

Study 2 means and standard deviations for the one-way repeated measures analysis of variance, examining initial means at Time 1 of how likely individuals are to reach out to a lonely individual through speaking with them, text messaging them, or contacting them through Facebook or social media among all participants; Time 1

Item	*M*	*SD*
"How likely would you be to reach out to another lonely individual through speaking to them?"	4.65[a]	1.37
"How likely would you be to reach out to another lonely individual through text messaging them?"	4.84[a]	1.69
"How likely would you be to reach out to another lonely individual through contacting them on Facebook or other social media sites?"	3.82[b]	1.91

Note: Means in different columns with different subscripts differ significantly from one another. Responses were measured on a seven point Likert scale (1 = *very unlikely*, 7 = *very likely*).

Table 6

Study 2 means and standard deviations for the one-way Analysis of Covariance, examining **awareness** *of lonely individuals among participants who completed follow-up measures at Time 2 between participants in the five different conditions (notice, assume responsibility, decide to help, control message, and no message); Time 2*

Condition	M	SD
Notice (n = 27)	3.74[ab]	1.38
Assume Responsibility (n = 29)	4.07[a]	1.58
Decide (n = 25)	4.16[a]	1.55
Control Message (n = 33)	3.18[b]	1.55
No Message (n = 42)	3.48[ab]	1.64
Total (n = 156)	3.68	1.57

Note: Means in different columns with different subscripts differ significantly from one another. Participants' were asked:

"In the past week, I was more aware of individuals around me who were lonely."

Responses measured on a seven point Likert scale (1 = *not at all*, 7 = *very often*).

Table 7

Study 2 means and standard deviations for the one-way Analysis of Covariance, examining **consideration** *of helping among participants who completed follow-up measures at Time 2 between participants in the five different conditions (notice, assume responsibility, decide to help, control message, and no message); Time 2*

Condition	M	SD
Notice (n = 27)	4.22[a]	1.37
Assume Responsibility (n = 29)	4.55[a]	1.40
Decide (n = 25)	4.84[a]	1.31
Control Message (n = 33)	4.45[a]	1.68
No Message (n = 42)	4.62[a]	1.58
Total (n = 156)	4.54	1.49

Note: Means in different columns with different subscripts differ significantly from one another. Participants' were asked:

"People can consider helping others in a number of ways. We are interested in just one of the many ways people can think about being nice. In the past week, how often did you <u>consider</u> doing something nice for someone who you thought was lonely, such as going over to speak with them?"

Responses were measured on a seven point Likert scale (1 = *not at all*, 7 = *very often*).

Table 8

Study 2 means and standard deviations for the one-way Analysis of Covariance, examining to what degree the individual reached out among participants who completed follow-up measures at Time 2 between participants in the five different conditions (notice, assume responsibility, decide to help, control message, and no message); Time 2

Condition	*M*	*SD*
Notice (n = 27)	3.48[a]	1.12
Assume Responsibility (n = 29)	3.34[a]	1.14
Decide (n = 25)	3.92[a]	1.53
Control Message (n = 33)	3.48[a]	1.72
No Message (n = 42)	3.81[a]	1.61
Total (n = 156)	3.62	1.47

Note: Means in different columns with different subscripts differ significantly from one another. Participants' were asked:

"People can help others in a number of ways. We are interested in just one of the many ways that people can show that they are nice. In the past week, how often did you <u>do</u> something nice for someone who you thought was lonely, such as going over and talking to them?"

Responses measured on a seven point Likert scale (1 = *not at all*, 7 = *very often*).