Perceived Social Support as a Proposed Mediator of the Relationship Between Dispositional Optimism and Suicide Ideation

By

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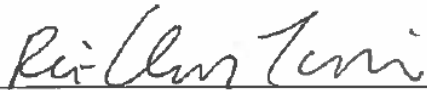Radford University

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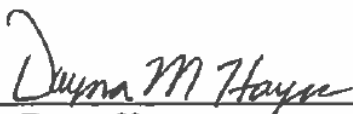Dr. Nicholas Lee   Date
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Abstract

Suicide is the second leading cause of death among college students in the United States, with rates continuing to rise. University suicide prevention efforts have focused heavily on risk factors. However, these methods concentrate on maladaptive and pathologizing principles of suicidality, which may neglect individual strengths that serve as safeguards against suicide. The purpose of this study was to investigate the mediating role of perceived social support on the relationship between dispositional optimism and suicide ideation in college students. The primary hypothesis of this study posits that dispositional optimism will be associated with higher levels of perceived social support, which in turn will be associated with lower levels of suicide ideation. Furthermore, it was hypothesized that perceived social support will mediate the relationships of hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation. Results of this study found that perceived social support partially mediated the relationships between dispositional optimism and suicide ideation, hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation.

Keywords: Perceived Social Support, Dispositional Optimism, Hope, Interpersonal-Psychological Theory of Suicide, Suicide Ideation, College Population

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To my mother, Lisa Evans, who showed me love as a hurt little boy, even when met with my feelings of anger. To my father, Kerk Evans, who worked tirelessly with his back so I could work with my mind. To my brother, Grant Evans, whose logic grounded my emotion during times of panic and overwhelming stress. Thank you for every moment we have shared together, as you have been my one constant in a world filled with uncertainty.

And lastly to Jenny Cobb, who was exactly the person I needed her to be when I needed that person most. Thank you for being my friend.

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Chapter I

INTRODUCTION

Per the U.S. Centers for Disease Control and Prevention (CDC; 2015), suicide is the 10th leading cause of death for all age groups, and the second leading cause within the 15–34-year age range. The rising rates of suicide have spawned an emphasis on suicide prevention efforts specific to the needs of college students. Nationwide, 3.9% of adults over the age of 18 had serious thoughts of suicide within the past year, with a nearly doubled rate of 7.5% in college-aged adults (i.e., 18–25 years old) (Substance Abuse and Mental Health Services Administration, 2014). Suicide prevention efforts in the university setting have focused predominantly on identifying risk factors for suicide completion, including prior psychiatric diagnosis, barriers to help-seeking, interpersonal loss, and the occurrence of stressful life events, among many others (Schwartz & Friedman, 2009). In other words, suicide prevention has primarily focused on risk factors for suicide rather than protective factors. While this gap in the literature has been studied, there is much room for growth, particularly as it relates to dispositional optimism and perceived social support.

Psychological research has brought forth great insight regarding the struggles and needs of college students. An area for further investigation, though, lies within positive individual characteristics serving as protective factors from suicide and suicide ideation. This has shown promise as an additional resource in suicide prevention efforts. Further research regarding the impact of these variables as they relate to suicide ideation brings focus to an under-resourced area of strengths and will likely lend utility for clinical intervention in university counseling centers. One of the most robust protective factors found in the suicide prevention literature is perceived social support. Resulting from this, theories aimed to conceptualize suicide and

suicide ideation, such as Joiner's (2005) interpersonal psychological theory of suicide (IPTS), seek to explore the importance of social influences on suicide ideation. Within the IPTS are the variables of perceived burdensomeness and thwarted belongingness; however, the relationship with these variables and suicide ideation has not been explored with the potential impact of perceived social support considered. Additionally, despite perceived social support being one of the strongest protective factors against suicide ideation, its role within other established protective factors against suicide ideation, such as dispositional optimism and hope, has yet to be examined. Because of the well-established impact of perceived social support as a protective factor for suicide ideation, this study explored the mediating role of perceived social support in order to explicate the respective relationships of dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation.

Suicide in College Students, Protective Factors, and Suicide Prevention

Suicide ideation is broadly defined as an enduring pattern of cognitions or thoughts related to taking one's own life (Dieserud et al., 2001). This experience is relatively common across the general population; however, it is still a noteworthy risk factor for suicide planning behaviors and a future suicide attempt (Kessler et al., 2005). Suicide and suicide ideation are highly prevalent on college campuses, and the rising rates of suicide in emerging adulthood have brought forth the urgency for suicide prevention efforts that meet the unique needs of this population. Recent research has shown suicide ideation (i.e., thoughts of dying) outpacing the rate of both suicide planning and suicide attempts (CDC, 2015). As a result, accompanying research has followed suit to better understand this pattern. The transition to college can be a difficult process, as these students may find themselves on their own for the first time and left unsure as to how to manage unfamiliar stressors in their life.

In helping students through this adjustment process, the university setting inherently offers several protective factors against the risk for psychological distress and suicide. For instance, being enrolled as a college student provides an environment that is inherently protective against suicide due to the availability of mental health services, a supportive peer environment, and the restriction of firearms on campus grounds (Schwartz & Whitaker, 1990; Silverman et al., 1997). However, even with these protections in place, suicide and suicide ideation still occur with relatively high frequency within the college student population. To help explain this phenomenon, it has been found that students' perceptions of social support may influence their well-being, such as a disbelief in the effectiveness of counseling services or interpersonal isolation (Denmark, Hess, & Becker, 2012). Even with protective factors present, it is understandable that other factors may influence a student's experience of suicide ideation, such as interpersonal difficulties or stress associated with academic work (Westefeld et al., 2005). The body of literature on suicide ideation within the college student population highlights the various complexities that come with such a sensitive subject matter. Because of the multifaceted nature of suicide and suicide ideation in college students, it is important that researchers continue to obtain a holistic understanding of the phenomena of suicide. From this understanding, prevention initiatives can be developed to save the lives from a cause of death that prematurely ends the life of over 1,000 young adults annually. To do this, alternative approaches to prevention should be explored with principles stemming from research within positive psychology at its core.

Positive psychology (Seligman & Cszikszentmihalyi, 2000) helps provide a strengths-based framework to conceptualize suicide and suicide ideation in college students. Positive psychology is defined as the scientific study of optimal human functioning, with the goal of

discovering and applying the means that allow individuals and communities to thrive and flourish. The theory behind positive psychology lies not in the neglect of individual weaknesses; rather, it incorporates and builds upon individual strengths to maintain meaning and purpose in one's life (Duckworth, Steen, & Seligman, 2005). In recent years, the principles of positive psychology have been adapted into the clinical realm of practice. Rashid (2014) has developed an evidence-based treatment method known as positive psychotherapy, which he defines as a strengths-based approach to therapeutic interventions, that integrates symptoms with strengths, resources with risks, weaknesses with values, and hopes with regrets to create a more balanced approach to therapy. Building upon this, Magyar-Moe, Owens, and Conoley (2015) emphasized the importance of utilizing well-being, meaning, hope, and strengths within a positive psychotherapeutic framework.

Some of the earliest lines of research focusing on protective factors stemmed from suicide ideation assessment development. One area of exploration into the study of protective factors began from an attempt to better understand the discrepancy between suicide ideation and the completion of suicide. Monumental in this research was Linehan et al. (1983) and their investigation of the role of protective factors and their relationship to suicide in the development of the Reasons for Living Inventory (RFL). The RFL was the first measure to empirically assess an individual's reasons not to die by suicide, suggesting its importance to those struggling with thoughts of suicide. Nearly two decades later, Gutierrez et al. (2002) adapted the RFL to the college-aged student population with the development of the Reasons for Living Inventory for Young Adults (RFL-YA). These inventories help to assess protective factors in individuals experiencing varying levels of suicide ideation, while simultaneously assessing negative risk factors.

Initial explorations in the suicidology literature have applied core concepts within positive psychology into a specific, strengths-based prevention method for suicide ideation and suicide attempts within the college student population. Differences in reasons for living have been investigated in younger and older adults, Black college students, and gender (Ellis & Lamis, 2007; Lamis & Lester, 2013; Miller, Segal, & Coolidge, 2001; Wang, Nyutu, & Tran, 2011). These studies highlight the importance of assessment of suicide and its subsequent treatment to be tailored to the unique need of the population being served.

The role character traits play in the prevention of suicide is a newly blossoming field of research within positive psychology literature. Factors and traits such as hope, forgiveness, optimism, and perceived social support have been identified as key strengths serving as protective factors against suicidal behaviors and thoughts (Hirsch, Webb, & Jeglic, 2011; Huen et al., 2015). While those variables serve as strong protective factors, dispositional optimism and perceived social support appear to be two of the strongest influences against suicide within the college student population (Hirsch & Barton, 2011; Hirsch, Connor, Duberstein, 2007; Hirsch & Rabon, 2015; Kleiman et al., 2012). The enhancement of optimism and perceived social support in the treatment of depressive symptoms, suicide ideation, and non-suicidal self-harm may lead to decreased risk of suicide ideation and suicide attempts.

It is for this reason that dispositional optimism, perceived social support, and hope are the three primary variables investigated in this study. These protective factors are particularly important when considering the conceptualization of why people die by suicide. Hopelessness is one of the most critical warning signs for suicide and having an optimistic disposition and/or hopeful outlook can serve as a protective factor against suicide ideation and/or a suicide attempt (Rudd, 2008). From a theoretical perspective, one's positive perception of their levels of social

support may impact the levels of perceived burdensomeness/thwarted belongingness and low belongingness, each of which are warning signs within the IPTS (Joiner, 2005).

While the research literature on positive psychology and strengths-based interventions have been influential in the understanding of what protective factors may exist to mitigate suicide ideation, further research is necessary to identify how these protective factors can be utilized in prevention efforts. Supplementary investigation into how dispositional optimism and perceived social support influences specific demographics of college students would be clinically helpful and allow practitioners to tailor interventions used in university counseling centers with students struggling with suicidality. At present, no study has investigated the mediating role of perceived social support on the relationship between dispositional optimism and suicide ideation. The purpose of this study is to determine whether perceived social support mediates the relationship between dispositional optimism and suicide ideation in college students.

Theories of Suicide

In an attempt to understand and conceptualize the construct of suicide, several key theories have been developed and studied to create a framework for the etiology of suicide throughout the lifespan. Highlighted in this section is a review of several theories of suicide from a sociological, biological, and psychological orientation that are directly applicable to the current study.

One of the earliest theories of suicide, and the first from a sociological perspective, was developed in the late 18th century by Emile Durkheim. His 1897 book, *Suicide*, highlighted a theory that centered upon the hypothesis that suicide results from social and structural factors external to the individual. This theory is considered to be the first theory that focused primarily on understanding the reasons "why" behind suicide, as opposed to including didactic judgments

to explain suicide (e.g., philosophical, religious, etc.). Specifically, Durkheim focused on disruptions within social integration to society and moral regulation as reasoning for different forms of suicide.

For instance, Durkheim (1897) described an egoistic suicide as one that is characterized by meaninglessness and isolation stemming from low social integration within a community. Contrarily, suicides resulting from high social integration (e.g., overinvolvement or perceived excessive value within the society) were known as altruistic suicides. From a perspective of moral regulation, anomic suicides resulted from low moral regulation by society, typically characterized by dramatic changes in status or position within the community. Suicides resulting from high levels of moral regulation, known as fatalistic suicides, were accompanied by beliefs that society norms would inhibit one's ability to achieve meaning. The influence of Durkheim's theory as it relates to the suicide literature and the present study is monumental. It was the first theory of its kind to contextualize suicide on a social and psychological level and helped fuel decades of research on the subject.

Expanding upon the work of Durkheim, Edwin Schneidman (1996) developed a theory of suicide centering upon the psychological pain an individual endures accompanied by the lack of needs being met within dimensions of pain. Specifically, this theory conceptualizes psychological needs within five different forms of psychological pain. These five include thwarted love/acceptance/belonging, excessive helplessness/fractured control, shame towards one's self-image, grief within the context of damaged relationships, and anger/rage (Schneidman, 1996). Within this theory, Schneidman (1996) utilized the term "psychache" to describe psychological pain. He defined this as "…the hurt, anguish, or ache that takes hold in the mind. It is intrinsically psychological – the pain of excessively felt shame, guilt, fear, anxiety,

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loneliness, angst, dread of growing old or of dying badly" (Schneidman, 1996, p.13). He

hypothesized that when psychological needs become thwarted as compared to one's ability to

engage in lethal self-injury, suicide risk increases as the individual desires to be free from

psychache, as opposes to a desire for death. This distinction is important, as it posits the

individual who suffers views suicide as an escape from pain, rather than a desire to no longer

live.

Broadening upon and deviating to some extent from Durkheim and Schneidman's

theories was research into the importance of hopelessness as it relates to suicide. This work

stemmed from the cognitive theory of depression and developed into the hopelessness theory of

suicidality (Abramson et al., 1989; Beck, 1987). A focus on hopelessness within the context of

depression was made, with individuals experiencing a lack of hope hypothesized to be at

significantly increased risk for suicide.

The concepts of hopelessness theory are broken down into two core, intertwined beliefs

within the cognitive triad of negative biases toward the self, world, and future. The hopelessness

theory of suicide posits that an individual experiencing suicide ideation believes a negative

outcome is likely to occur regarding something of value to the individual and the likelihood of

that individual changing its outcome is minimal (Abramson et al., 2000). Because of this theory,

the presence of hopelessness is viewed as a stronger predictor of suicide than depression on its

own. Recent efforts have sought to clarify the role of hopelessness on suicidality. A key

discovery was made by Klonsky and May (2014), who found that the presence of hopelessness

does not differentiate those with suicide ideation versus those who attempt suicide. While this

finding does not necessarily invalidate the importance of hopelessness and suicide, it does open

the door for additional research to be conducted regarding its role.

Modern theories of suicide emphasize the distinction between those who experience suicide ideation and those who attempt suicide, with key newly developed theories integrating the variables of psychological pain, hopelessness, and perceptions of social support. These theories are the three-step theory (3ST; Klonsky & May, 2014) and the IPTS (Joiner, 2005). These theories directly address the role of connectedness to one's support system and its impact as a protective factor to suicide.

Joiner's (2005) IPTS was developed within an interpersonal context to theorize the development of suicide ideation and aims to account for the risk from suicide ideation evolving into a suicide attempt. The IPTS is arguably the most influential theory of suicide to date, with over a decade of studies indicating support for its principles (Chu et al., 2017). This theory's emphasis on the perceptions of social connectedness was the first to explain what causes suicide ideation to develop into a suicide attempt. Joiner posited that three factors must be present for a suicide to occur.

The first of these factors is perceived burdensomeness. This concept is defined as a mental state characterized by apperceptions that others would "be better if I were gone" (Deci & Ryan, 2000). When individuals feel a sense of perceived burdensomeness on their peers, there is a belief that their support systems would lead more improved lives without them. Importantly, this variable has arguably shown the strongest support for the prediction of suicide ideation within the ITPS theory and has been shown to be a strong contributor to suicide ideation. Of the variables within the IPTS, the relationship between perceived burdensomeness and suicide ideation has been found to be the strongest (Cero et al., 2015).

Alongside perceived burdensomeness as a variable predicting suicide ideation within IPTS is a low sense of belonging/social isolation. Joiner (2005) referred to this concept as

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thwarted belongingness. Thwarted belonginess is defined as a psychologically painful mental state that results when the need for connectedness or need to belong is unmet (Leary et al., 1995). This lack of connection to important persons serves as a risk factor for suicide ideation in the IPTS, particularly within the college student population (Van Orden et al., 2008). Within the framework of the IPTS, when combined, the variables of perceived burdensomeness and thwarted belongingness are hypothesized to develop into suicide ideation. In order for a suicide attempt to occur, though, the presence of acquired ability for lethal self-injury must have occurred within the individual's life.

According to Joiner, for an individual to acquire the ability for lethal self-injury, one must be exposed repeatedly to psychological/physical pain in addition to fearful stimuli throughout the lifespan. These experiences desensitize the individual to increased engagement in risk-taking behaviors, which can be particularly dangerous if firearms are accessible. In summation, the IPTS centers upon the framework that perceptions of low belongingness and high burdensomeness combined with the acquired ability for lethal self-injury is theorized to lead to a suicide attempt.

Building upon the foundation of over 15 years of research since the IPTS was developed, Klonsky and May (2014) established a new framework for suicide that continued within an ideation-to-action ideology called the 3ST. The ideation-to-action framework postulates there is a major distinction between the development of suicide ideation and the progression from suicide ideation to a suicide attempt (Klonsky, May, & Saffer, 2016). The proposed 3ST differs from the IPTS in that it follows a stepwise pattern to explain the difference between those with suicide ideation and those who eventually attempt suicide.

The primary variables involved in the 3ST focus on one's capacity for suicide and are broken down into dispositional, acquired, and practical domains (Klonsky & May, 2015). Dispositional capacity primarily refers to genetically driven variables, such as a biological condition for low pain sensitivity. Acquired capacity refers to a learned or experienced habituation to pain, fear, and death. Lastly, practical capability refers to the factors that may make suicide attempts more accessible, such as the access to firearms. Despite the 3ST being a recent development in the field of suicidology, it shows great promise in understanding and conceptualizing suicide, with important implications for its prevention.

Within these frameworks, the role of protective factors can be explored to determine their relationship with suicide ideation and suicide attempts. With a college student population in particular, the variables of perceived social support, dispositional optimism, and hope warrant exploration as to understand how they act as buffers against suicide risk.

Perceived Social Support

Conceptually, perceived social support is multifaceted and varies depending on the individual's discernment. Its form may come in the shape of interpersonal friendships, familial closeness, or that of a significant other such as a romantic partner (Zimet et al., 1988). The importance of perceived social support is marked for college students, as the adjustment to college can be difficult to manage if there is a belief that they are on their own. Critical research findings have shown that college students with lower levels of perceived social support have been associated with increased physical and psychological distress (Christensen, Batterham, Mackinnon, Donker, & Soubelet, 2014).

Stemming from these findings, it appears that levels of perceived social support can play a significant role in an individual's general well-being across domains. Researchers have found

that college students who have higher perceived levels of social support are less likely to experience psychological and/or academic distress (Laible, Carlo, & Raffaeli, 2000; Lidy & Kahn, 2006). Having this sense of connection and support to a novel community appears to be protective from overall psychological distress and environmental stressors. This is no different with regards to perceived social support as a protective factor to suicide and suicide ideation with college students, as students who receive positive emotional and tangible support from peer relationships are less likely to experience thoughts related to suicide (Hirsch & Barton, 2011). The role perceived social support plays as it relates to suicide has brought about informative and empirical theories related to suicide, such as the IPTS and 3ST.

Research findings support the theoretical assumptions of the impact of positive perceptions of social support. A well-established protective link between positive perceived social support and suicide ideation has been made within the college student population (Kleiman, Riskind, Schaefer, & Weingarden, 2012). Its purpose is not limited to the status of being a protective factor, however. Not only does perceived social support act as a protective factor, but it has been shown to promote the positive psychological characteristic of resiliency and improve self-esteem (Kleiman, Riskind, & Schaefer, 2014). In short, positive perceptions of perceived social support protect against suicide risk and promote the growth of character strengths.

It is, however, uncertain as to how the mechanism of perceived social support can bring about these benefits. Some studies have attempted to provide understanding and context. For instance, one study found that college students who report receiving empathic and thoughtful messages from their support systems described feeling a sense of connection to these people and even cited them as a primary reason for living (Knott & Range, 1998). Moreover, the

communication of suicide ideation can foster the facilitation of empathetic responding and support. A qualitative study by Garcia-Williams and McGee (2016) found that upon hearing the disclosure of suicide ideation from members within their support system, interpersonal support was increased. The importance of these findings has led psychologists to expand these findings into broader theories of suicide, such as the IPTS.

Joiner (2005) sought to understand the rationale as to why social support is instrumental in the prevention of suicide. The IPTS posits that suicide risk is drastically increased when an individual experiences social isolation or a low sense of belonging or a perceived sense of burdensomeness on their support system. Because of this, the role of belongingness plays a major role in the well-being of college students, as belongingness has been shown to account for decreased levels of suicide ideation across semesters (Joiner, Hollar, & Van Orden, 2006). It follows, then, that with the strong support of one's family, friends, and/or a significant other, levels of social isolation and perceived burdensomeness may be decreased. Within the model proposed in the current study, perceptions of one's social support can aide in the reduction of risk factors such as perceived burdensomeness and thwarted belongingness.

The importance of perceived social support and suicide has been thoroughly documented throughout the literature. What makes the variable of perceived social support unique to the importance of suicide prevention intervention is that it is quantifiable to the individual's personal perception. It is understandable to assume that regardless of the size or type, if someone believes their support system is unconditionally supportive and caring, this would serve as a protective factor to suicide. With college students, however, this can be more complicated than it seems, and can be further complicated if high levels of perceived burdensomeness are present.

While the university setting is a community-oriented environment that can facilitate the development of a support system, the transition to college will likely bring with it a change of some capacity of perceived social support. This may come in the form of increased distance between themselves and their family or difficulties making new friends. Because of this, it is important for university campuses to embrace a more holistic approach in suicide prevention efforts, focusing not only on risk factors, but on the development of protective factors such as perceived social support.

Dispositional Optimism and Hope

Dispositional optimism is defined as a relatively stable personality trait in which an individual holds the expectancy that future outcomes will be positive as opposed to negative (Carver & Scheier, 2014). When considering dispositional optimism as a construct, an important clarification must be made to distinguish it from the construct of hope. Dispositional optimism differs from hope in that dispositional optimism is of the perspective that one's future outcomes will be positive, as opposed to hope takes into consideration one's self-efficacy and capability to accomplish goals in their future (Snyder, Rand, & Sigmon, 2002). With suicide described as a phenomenon characterized by a lack of a positive outlook toward the future, research emphasizing variables that highlight future orientation is needed.

Interestingly, and perhaps unsurprisingly, literature has shown the constructs of both hope and dispositional optimism provide important psychological benefits, specifically as it relates to overall well-being (Gallagher & Lopez, 2009; Scheier & Carver, 1992). Both hope and dispositional optimism provide their own unique impact on suicide and suicide ideation. These variables have each been found to have a unique role in the reduction of suicide ideation and rumination of suicide (Tucker, Wingate, O'Keefe et al., 2013). As conceptualized by Joiner's

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(2005) IPTS, a primary factor that brings about increased risk for suicide ideation is holding perceived burdensomeness on one's support system. Both hope and dispositional optimism have been shown to reduce perceived burdensomeness, with dispositional optimism serving as a more salient protective factor for suicide risk (Davidson & Wingate, 2013). While hope and dispositional optimism are conceptually similar, they each make unique contributions to psychological well-being and in the protection from suicide ideation.

Dispositional optimism has consistently proven to play an important role in protection from suicide ideation and suicide attempts. Of interest to the relationship of dispositional optimism and suicide is the variable of hopelessness. Hopelessness has been shown to moderate the relationship between depression and suicide, which leads to the possibility that if hopelessness can be protected against, so too can suicide risk (Weishaar & Beck, 1992). Building upon this assumption, Hirsch and Conner (2006) found evidence to support the moderating role of dispositional optimism between the relationship of hopelessness and suicide ideation. This finding was corroborated in a subsequent study that found that individuals with higher levels of dispositional optimism were at a reduced risk for suicide and suicide ideation when faced with a distressing life event (Hirsch et al., 2007). These results support the notion that when faced with environmental stressors, dispositional optimism serves as a barrier to the potentially lethal relationship between hopelessness and suicide.

When considering the role of hopelessness in the etiology of suicide and suicide ideation, the ability to have a fundamental understanding of its impact is crucial for the treatment of suicide ideation and the development of prevention initiatives. This variable holds major implications as it relates to suicide and suicide ideation in college students. It is understood that dispositional optimism is a personality characteristic that plays a major role in the perspective

one takes toward the future. Because of its inherently positive outlook toward the future, dispositional optimism serves as a protective factor against hopelessness and the risk for a suicide attempt. However, despite a sizeable body of literature on dispositional optimism, there appears to be a gap in its understanding of the interactional relationship to perceived social support and suicide ideation.

Similar, but not identical in future orientation to dispositional optimism, the construct of hope has been found to be a protective factor for both psychological distress and suicide ideation. This construct has been defined as goal-oriented, perceived capability thought processes in which people perceive that they can produce routes to desired goals and the requisite motivation to use those routes (Snyder et al., 1991). This level of individual autonomy within the core of hope allows for its presence to bring about positive views toward the future. This has been found to hold a significant impact on maintaining and improving physical and psychological health (Scioli et al., 2016). In conceptualizing hope as both an emotion and a cognition, hope helps to create and develop alternative pathways for one's ability to reach goals in their future. This has been conceptualized within hope theory to account for overcoming difficult challenges people with high levels of hope may face (Snyder et al., 1991).

As it relates specifically to college students, hope has been found to improve both psychological functioning and academic performance. Increased hope has been shown to increase dedication toward academic achievement, improve engagement within the academic setting, and lead to higher life satisfaction, self-worth, and psychological functioning (Marques et al., 2015). Hope and optimism have unique contributions as a protective factor for suicide ideation, particularly within the framework of the IPTS. On their own, these variables were found to negatively predict thwarted belongingness, perceived burdensomeness, and suicide

ideation (O'Keefe & Wingate, 2013). This distinction highlights the importance that dispositional optimism and hope are mutually exclusive protective factors for psychological pain, and when highlighted in the course of a therapeutic intervention, can reduce the risk for suicide in a college student population.

Definition of Terms

For the purposes of continuity, consistency, and clarity, specific definitions of applied terminology that are used throughout the study are outlined as follows:

Dispositional Optimism: The relatively stable personality characteristic in which an individual expects future outcomes to be positive (Carver & Scheier, 2014).

Hope: Goal-oriented thinking in which people perceive that they can produce routes to desired goals and the requisite motivation to use those routes (Snyder et al., 1991).

Positive Psychology: The scientific study of optimal human functioning, with the goal of understanding and applying the factors that help individuals and communities thrive and flourish (Seligman & Csikszentmihalyi, 2000).

Protective Factor: Characteristics associated with a lower likelihood of negative outcomes or reduce a risk factor's impact (Substance Abuse and Mental Health Services Administration, 2015).

Perceived Burdensomeness: A mental state characterized by apperceptions that others would "be better if I were gone" (Deci & Ryan, 2000).

Perceived Social Support: Perceived support accessible to an individual through social ties to other individuals, groups, and the larger community (Lin et al., 1986).

Risk Factor: Characteristics at the biological, psychological, family, community, or cultural level that precede and are associated with a higher likelihood of negative outcomes (Substance Abuse and Mental Health Services Administration, 2015).

Social Desirability: The tendency of subjects to attribute to themselves statements that are desirable and reject those that are undesirable (Edwards, 1957).

Suicide: Death caused by self-directed injurious behavior with an intent to die as a result of the behavior (CDC, 2017).

Suicide Attempt: A non-fatal, self-directed, potentially injurious behavior with an intent to die as a result of the behavior; might not result in injury (CDC, 2017).

Suicide Ideation: Thinking about, considering, or planning suicide (CDC, 2017).

Thwarted Belongingness: A psychologically painful mental state that results when the need for connectedness or need to belong is unmet (Leary et al., 1995).

Hypotheses

H_1: Having higher levels of perceived social support will mediate the relationship between dispositional optimism and suicide ideation.

H_2: Having higher levels of perceived social support will mediate the relationship between hope and suicide ideation.

H_3: Having higher levels of perceived social support will mediate the relationship between perceived burdensomeness and suicide ideation.

H_4: Having higher levels of perceived social support will mediate the relationship between thwarted belongingness and suicide ideation.

Method

Participants

Three hundred and forty-nine students from a public, mid-sized, rural, university in the Southeastern United States participated in this study. Participants were recruited via a convenience sample and received course credit for their participation in the study after using the research participation scheduling system (SONA). The majority of participants were between the ages of 18–21 years old, with the mean being 19.14 years old. Participants were primarily in their first year of college ($n = 196$, 56.2%) and identified their biological sex as female ($n = 279$, 79.9%). The majority of participants identified their sexual orientation as heterosexual ($n = 296$, 84.8%). Participant relationship status was primarily single ($n = 190$, 54.4%), with 41.5% identifying as being in a relationship ($n = 145$). Regarding racial demographics, 74.5% of participants were White ($n = 260$), with the second most common response being Black or African American at 15.2% ($n = 53$). Geographic location displayed a relatively even divide between growing up in rural ($n = 167$, 47.9%) and urban areas ($n = 144$, 41.3%).

Measures

Five measures were used in this study: the *Multidimensional Scale of Perceived Social Support* (Zimet, Dahlem, Zimet, & Farley, 1988), the *Life-Orientation Test–Revised* (Scheier, Carver, & Bridges, 1994), the *Suicide Behaviors Questionnaire–Revised* (Osman et al., 2001), the *Adult Hope Scale* (Snyder et al., 1991), and the *Interpersonal Needs Questionnaire* (Van Orden et al., 2012). A demographic questionnaire was also administered to collect data related to age, relationship status, area in which the participant was raised, year in college, gender, race/ethnicity, and sexual orientation.

Perceived Social Support. Perceived social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). The MSPSS is a 12-item measure designed to assess personal perceptions of social support. This measure

assesses personal perceptions of social support from three domains: (a) family, (b) friends, and (c) a significant other. Responses are given in a Likert-type format ranging from 1 (*Very Strongly Disagree*) to 7 (*Very Strongly Agree*), with a scaled score for each of the three domains of personal perceptions of social support obtained. A sample item from the MSPSS is, *I get the emotional help and support I need from my family*. A total score for overall perceived social support is generated by summing the scaled scores of the family, friends, and significant other domains of social support. The MSPSS has shown levels of internal consistency, with a Cronbach's alpha of .88 and test-retest reliability of .85 (Zimet et al., 1988). Construct validity for the MSPSS was found to be inversely related to depression, $r = -.13$, $p < .05$ (Zimet et al., 1988). In the current study, the MSPSS had a Cronbach's alpha of .931. This measure was initially normed on college students and has been used to assess perceived social support within the suicide literature, suggesting its fitness for use within this study.

Dispositional Optimism. Dispositional optimism was measured by the Life Orientation Test–Revised (LOT-R; Scheier et al., 1994). The LOT-R is a 10-item measure designed to assess dispositional optimism versus dispositional pessimism. Responses are given in a Likert-type format ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*). The language of the items within the LOT-R is specifically phrased to assess for either optimism (three items) or pessimism (three items). The remaining four items are neutrally phrased to serve as fillers. A sample item from the LOT-R is, *Overall, I expect more good things to happen to me than bad*. An overall score is obtained by first reverse coding the three items assessing pessimism, then summing the reverse-coded pessimism items with the optimism items. Filler items are not included in the overall score. Higher scores on the LOT-R are indicative of increased levels of dispositional optimism with lower scores indicative of decreased levels of dispositional optimism. The score

is continuous, as there is no benchmark for being either an optimist or a pessimist. The LOT-R has shown acceptable levels of internal consistency, with a Cronbach's alpha of .78 and a test-retest reliability of .79 (Scheier et al., 1994). The LOT-R was found to have strong convergent validity with the original LOT ($r = .95$) and discriminant validity with neuroticism assessed by the Guilford-Zimmerman Temperament Survey ($r = -.43$) and Eysenck Personality Questionnaire ($r = -.43$) (Scheier et al., 1994). In the current study, the LOT-R had a Cronbach's alpha of .793. This measure was initially normed on college students and has been used to assess dispositional optimism within the suicide literature.

Suicide Ideation and Suicide Behaviors. The presence of suicide ideation and/or suicide behaviors were measured using the Suicide Behaviors Questionnaire–Revised (SBQ-R; Osman et al., 2001). The SBQ-R is a four-item measure designed to assess four different dimensions of suicidality: (a) lifetime suicide ideation and/or suicide attempt, (b) frequency of suicide ideation over the past year, (c) the level of threat of a suicide attempt, and (d) self-reported perceived likelihood of suicide behavior in the future. The SBQ-R consists of two questions utilizing a Likert-type response and two questions in which participants must choose the most appropriate single answer. Higher scores are indicative of greater suicide ideation and/or suicide behaviors, with a total score of 7 being the cut-score for the university student population. A sample item from the SBQ-R is, *Have you ever told someone that you were going to commit suicide, or that you might do it?* The total score consists of (a) lifetime suicide ideation or suicide attempts, (b) experience of suicide ideation over the past year, (c) openness in communicating with others regarding their experience of suicide ideation or intent to die by suicide, and (d) the individual's perceived likelihood of a future suicide attempt. Within the college student population, the SBQ-R displays acceptable to good reliability at .76 to .88 and

moderate convergent validity with the Adult Suicidal Ideation Questionnaire ($r = .40, p < .40$) (Osman et al., 2001). In the current study, the SBQ-R had a Cronbach's alpha of .840.

   Hope. The Adult Hope Scale (AHS) was administered to assess the tangible difference between dispositional optimism and hope, specifically regarding an individual's agency and plans to accomplish future tasks (Snyder et al., 1991). The AHS is a 12-item measure designed to assess two theoretical dimensions of hope: 1) agency/goal-directed energy, and 2) pathways/plans to accomplish goals (Snyder et al., 1991). The AHS consists of 12 questions in total, with four items creating an agency subscale, four items creating a pathway subscale, and four filler items. A sample item from the AHS is, *Even when others get discouraged, I know I can find a way to solve the problem*. Responses are given range from 1 (*Definitely False*) to 8 (*Definitely True*). A score for agency and pathway is derived by summing their respective items. A total hope score is derived by summing both the agency and pathway scores. Filler items are not included in any scoring. Scores on the AHS are continuous, with totals of agency, pathway, and/or total hope indicative of increased level(s) of hope, with lower scores indicative of decreased level(s) of hope. The AHS was normed with six cohorts of university students over a 3-year span, and two psychological treatment samples. The AHS has shown acceptable internal consistency with a Cronbach alpha range between .63 and .84 across all subscales, and a test-retest reliability between .76 and .82 over a 10-week period (Snyder et al., 1991). Discriminant validity was found between the AHS and the two subscales of the Self-Consciousness Scale ($r = .06$ and $-.03$) and convergent validity toward general positive outcome expectations was found with the Generalized Expectancy for Success Scale at .54, $p < .05$ (Snyder et al., 1991). In the current study, the AHS had a Cronbach's alpha of .872.

Perceived Burdensomeness and Thwarted Belongingness. The Interpersonal Needs

Questionnaire (INQ) was administered to measure the variables of perceived burdensomeness

and thwarted belongingness (Van Orden et al., 2012). The INQ was developed within the theory

of the interpersonal theory of suicide, which posits that a low sense of belonging or

burdensomeness on a support system is associated with increased risk for suicide (Joiner, 2005).

The INQ is a 15-item measure assessing recent experiences of both thwarted belongingness and

perceived burdensomeness. A sample item from the INQ is, *These days, I am fortunate to have*

many caring and supportive friends. This measure utilizes a 7-point rating scale anchored by 1

(*Not at all true for me*) to 7 (*Very true for me*). A score of perceived burdensomeness is obtained

by summing items 1 through 6, with high scores indicative of increased feelings of perceived

burdensomeness along a continuum. In the current study, the INQ items that assessed for

perceived burdensomeness had a Cronbach's alpha of .939. A score of thwarted belongingness

is obtained by summing items 7 through 15, with higher scores indicating greater levels of

thwarted belongingness. INQ items that assessed for thwarted belongingness had a Cronbach's

alpha of .882. The development of the INQ has demonstrated good construct validity in

association of both thwarted belongingness and perceived burdensomeness with suicide ideation

both young and older adults on several measures, with significant scores (.366 - .824, $p < .05$)

(Van Orden et al., 2012).

Social Desirability. The Marlowe-Crowne Social Desirability Scale (MCSDS) was

administered to assess for socially desirable response patterns from participants (Crowne &

Marlowe, 1960). The MCSDS was developed to detect dishonest responding on self-report

inventories so that those who responded in an unrealistically favorable manner can be flagged to

not skew the data as an outlier participant. Despite its development nearly 60 years ago, recent

research has found the MCSDS to outperform alternative scales aimed at identifying social

desirability responding (Lambert, Arbuckle, & Holden, 2016). The MCSDS is a 33-item self-

report measure assessing personal attitudes and traits toward various general situations in which

social desirability may have an impact. This measure uses a true or false response format for

each item. A score of social desirability is obtained by summing the total number of socially

desirable responses. Scoring interpretation of the MCSDS total score is split into three

categories. Scores that fall between 0–8 indicate a low socially desirable response pattern, scores

between 9–19 indicate an average degree of concern for social desirability, and 20–33 indicate

high levels of social desirability signaling the potential avoidance of disapproval of those who

may read their responses. A sample item from the MCSDS is, *There have been times when I felt*

like rebelling against people in authority even though I knew they were right. The MCSDS has

demonstrated strong internal reliability with a coefficient alpha of 0.88 and high concurrent

validity through correlations with the Minnesota Multiphasic Personality Inventory (Crowne &

Marlowe, 1960). Additionally, a 2011 study found internal consistency Cronbach alpha levels

ranging between 0.63–0.80 in several countries (Vu, Tran, Pham, & Ahmed, 2011). In the

current study, the MCSDS had a Cronbach's alpha of .514.

Procedure

Prior to data collection, approval from the university's Internal Review Board was

received. Participants were granted access to the study's 93 items via a secure online survey

through the Qualtrics website by clicking a link to the survey through SONA. Following this

description, a link took the participant to a secure webpage with informed consent for internet

research. The complete survey, including informed consent and debriefing statement, are

included in Appendix D.

After giving consent, participants responded to demographic information followed by items from the SBQ–R, LOT-R, MSPSS, AHS, INQ, and MCSDS. Upon completion of the survey, participants were given contact information for the lead researchers. To conclude the survey, participants received a debriefing statement, along with resources available for university and local counseling services, and immediate support resources such as the National Suicide Prevention Lifeline (1-800-273-8255), emergency behavioral health services, and the police department.

Analysis

The primary hypothesis of this study posits that perceived social support will mediate the relationship between dispositional optimism and suicide ideation. Furthermore, it was hypothesized that perceived social support will mediate the relationships between hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation. To test these hypotheses, a linear regression analysis was conducted using SPSS software package. Perceived social support was the predicted mediator, with dispositional optimism as the predictor variable and suicide ideation as the outcome (dependent) variable. The study's remaining hypotheses centered upon the proposed mediating variable of perceived social support as follows: Perceived social support will mediate the relationship between hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation. The criterion established by Baron and Kenny (1986) provided the guidelines for mediation analysis. In this survey, the primary hypothesis stated that perceived social support would mediate the relationship between dispositional optimism and suicide ideation. Hypotheses were tested using Hayes' PROCESS model (version 3.3, model number 4) in SPSS (AFHayes.com, Hayes, 2013). The PROCESS model (version 3.3, model number 4)

was chosen for analyses due to its recent track record as the preferred method for mediation analyses due to its ability to provide an analytical technique that can be applied to non-normal data in the form of bootstrapped confidence intervals (Hayes, 2013).

Data Cleaning and Missing Data

Per the guidelines of Tabachnick and Fidell (2007), analyses were conducted to assess for the accuracy of the data collected, the scale and types of missing information and responses, and an assessment of outliers and the normality of scales. Additionally, data was screened to identify any missing data entry points (Parent, 2013). Following these steps of cleaning, 351 usable participants remained, followed by a missing data analysis. Little's (1988) test of missing completely at random (MCAR) was conducted to determine potential patterns in missing data. The Little (1988) test states that data that does not exceed 5% of data MCAR at the sample size of the current study will yield results similar to any other missing data analysis (Tabachnick & Fidell, 2007). The analysis of missing data in this study found that missing data ranged from 0.3–2.0%, which is deemed MCAR and is not considered to be due to problematic nonresponding. The expectation-maximization method in SPSS for the missing data points in the SBQ-R, LOT-R, MSPSS, AHS, INQ, and MCSDS. All p-values for the expectation-maximization method for the SBQ-R, LOT-R, MSPSS, AHS, INQ, and MCSDS were not found to be significant ($p < .05$). Because of the categorical nature of demographic questions, missing data analysis was not conducted.

<div align="center">

Results

</div>

Data Normality

Data was assessed for assumptions of normality and outliers, followed by a screening for univariate outliers by converting scales to z-scores. Per criterion established by Tabachnick and

Fidell (2007), one participant was an outlier on the AHS measure (-3.523) and was removed from the dataset. Multivariate outliers were then assessed for by computing Mahalanobis distance scores and checking probabilities. One participant was considered a multivariate outlier (Mahalanobis D2 score $P < .001$) and was removed from the dataset. The final sample size included 349 university students. Normality in the forms of skewness and kurtosis was examined to determine if there were concerns in these domains. When considering the nature of the variables being measured, such as suicide ideation, higher levels of skewness and kurtosis was to be expected at the onset of the study given the estimated frequencies of present suicide ideation in college students that has been found is around 6% (Arria et al., 2009). Values of skewness and kurtosis between -2 and +2 are considered acceptable for most variables, but again, the importance of a large sample size (n > 100) can serve as a barrier for a negative impact on data analysis (Gravetter & Wallnau, 2016; Tabachnick & Fidell, 2007). With the exception of dispositional optimism and social desirability, all variables within this study displayed some level of skewness. Data was transformed based upon its positive or negative skewness in order to minimize the skewness and kurtosis to the best of the data's ability. Skewness and kurtosis for all scores can be found in the Table 1. Lastly, a multicollinearity check found no concerns with intercorrelations with the predictor variables of this study.

Table 1.
Skewness and Kurtosis Values for All Scales Scores.

Scale	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis
SBQ-R	.467	.130	-1.020	.260
LOT-R	-.228	.130	-.089	.260
MSPSS	-.060	.130	-.908	.260
AHS	-.536	.130	.118	.260
INQ-PB	-.248	.130	-.940	.260
INQ-TB	.981	.130	-.375	.260
MCSDS	.109	.130	-.043	.260

Descriptive Statistics and Pearson Correlations

Total scores for all measures were summed with respective filler items not included and reverse-coded items. Listed in Table 2 are the mean scores, standard deviations, and range of scores for all scales. One hundred twelve participants in the final sample fell at the equal to or greater than 7 cutoff score for risk according to the SBQ-R validation reference for the adult general population, with the average participant being deemed not at risk for suicide in the study. Participants reported having higher than average scores on dispositional optimism, perceived social support, and hope. The INQ was divided scored in order to assess the levels of perceived burdensomeness and thwarted belongingness as unique variables. On average, participants reported low sense of burdensomeness and low levels of thwarted belongingness, with a low sense of burdensomeness on their support system and moderately high levels of acceptance by those in their life. The MCSDS revealed that participants responded with an average degree of concern about social desirability.

Table 2.
Descriptive Statistics of the Variables.

Scale	Mean	Standard Deviation	Range
SBQ-R	5.83	3.20	3.0-16.0
LOT-R	12.90	4.41	0.0-24.0
MSPSS	5.59	1.13	1.0-7.0
AHS	47.70	8.50	22.0-64.0
INQ-PB	10.77	7.18	6.0-42.0
INQ-TB	24.70	11.64	9.0-62.0
MCSDS	17.39	5.15	2.0-33.0

As shown on the following page, the Pearson correlation matrix (see Table 3) displays the results of the linear relationships between the SBQ-R (suicide ideation), LOT-R (dispositional optimism), MSPSS (perceived social support), AHS (hope), INQ (perceived burdensomeness and thwarted belongingness), and MCSDS (social desirability).

Table 3
Pearson Correlations.

Scale	SBQ-R	LOT-R	MSPSS	AHS	INQ_PB	INQ_TB	MCSDS
SBQ-R		-.452[**]	.449[**]	-.362[**]	.623[**]	.521[**]	-.320[**]
LOT-R	-.452[**]		-.418[**]	.598[**]	-.546[**]	-.539[**]	.265[**]
MSPSS	.449[**]	-.418[**]		-.584[**]	.475[**]	.632[**]	-.217[**]
AHS	-.362[**]	.598[**]	-.584[**]		-.503[**]	-.589[**]	.293[**]
INQ-PB	.623[**]	-.546[**]	.475[**]	-.503[**]		.616[**]	-.252[**]
INQ-TB	.521[**]	-.539[**]	.632[**]	-.589[**]	.616[**]		-.273[**]
MCSDS	-.320[**]	.265[**]	-.217[**]	.293[**]	-.252[**]	-.273[**]	

[**]. Correlation is significant at the 0.01 level (2-tailed).
Reference: In Table 3 above, the SBQ-R refers to the Suicide Behaviors Questionnaire-Revised, the LOT-R refers to the Life Orientation Test-Revised, the MSPSS refers to the Multidimensional Scale of Perceived Social Support, the AHS refers to the Adult Hope Scale, the INQ-PB refers to the Interpersonal Needs Questionnaire items that assess for perceived burdensomeness, the INQ-TB refers to the Interpersonal Needs Questionnaire items that assess for thwarted belongingness, and the MCSDS refers to the Marlowe-Crown Social Desirability Scale.

Additional correlational analyses were conducted to determine whether the dependent variable of suicide ideation may vary as a function of the demographic variables. Demographic variables examined in these analyses included participant year in college, biological sex, sexual orientation, geographic upbringing, and relationship status. Effect size between nominal and

interval data was conducted using eta (η) and partial eta-squared (ηp^2) statistics. Year in college

($\eta = .193$; $\eta p^2 = .037$), biological sex ($\eta = .020$; $\eta p^2 = .000$), sexual orientation ($\eta = .270$; $\eta p^2 =$

.073), geographic upbringing ($\eta = .080$, $\eta p^2 = .006$), and relationship status ($\eta = .066$; $\eta p^2 = .004$)

displayed little to no effect on the dependent variable of suicide ideation.

Mediation Analyses

Significant linear relationships (see Table 3) allotted for a series of mediation analyses to

be conducted to examine the proposed mediating effect of perceived social support on the

relationships between dispositional optimism, hope, perceived burdensomeness, and thwarted

belongingness and suicide ideation. Mediation analyses within this study operated under the four

Baron and Kenny (1986) principles required for mediation to occur. The first principle is that

the relationship between the X variable must predict the Y variable (path c). The second is that

the X variable must predict the mediating variable (path a). Third, the X variable and the

mediating variable together predict the Y variable, with two conditions: The mediating variable

predicts Y (path b), and the X variable no longer predicts the Y variable, or its prediction of the

Y variable is lessened because of the presence of the mediating variable (path c'). See Appendix

A for a visual image of general mediation conditions.

Perceived social support was the proposed mediator between dispositional optimism and

suicide ideation, hope and suicide ideation, perceived burdensomeness and suicide ideation, and

thwarted belongingness and suicide ideation. Bootstrapped confidence intervals were used to

test the mediation effect in the Hayes' (2013) PROCESS model (version 3.3, model number 4).

Covariate variables were not included in the mediation analyses. Perceived social support served

as a partial mediator to the aforementioned relationships, with all mediation conditions being

met. Table 4 contains a condensed format of the results from the PROCESS analyses from the

study's four hypotheses.

Table 4.
Mediation Analyses.

Hypothesis	Path a	Path b	Path c	Path c'	Indirect Effect of X on Y (ab = c-c')	Bootstrap Confidence Intervals (lower limit, upper limit)
1. Dispositional Optimism (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = -.418$ $t(347) = -8.564$ $p < .001$	$B = .317$ $t(346) = 6.297$ $p < .001$	$b = .455,$ $t(347) = -9.43$ $p < .001.$	$b = .322$ $t(346) = -6.408$ $p < .001$	-.132	-.185, -.090
2. Hope (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = -.592$ $t(347) = -13.414$ $p < .001$	$b = .362$ $t(346) = 6.135$ $p < .001$	$b = .369$ $t(347) = -7.241$ $p < .001$	$b = .155$ $t(346) = -2.593$ $p < .001$	-.214	-.287, -.147
3. Perceived Burdensomeness (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = .473$ $t(347) = 10.063$ $p < .001$	$b = .198$ $t(346) = 4.227$ $p < .001$	$b = .624$ $t(347) = 14.839$ $p < .001$	$b = .530$ $t(346) = 11.360$ $p < .001$	.094	.043, .143
4. Thwarted Belongingness (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = .627$ $t(347) = 15.194$ $p < .001$	$b = .200$ $t(346) = 3.410$ $p < .001$	$b = .521$ $t(347) = 11.374$ $p < .001$	$b = .395$ $t(346) = 6.973$ $p < .001$	.125	.050, .197

When considering the significant correlations between social desirability and the study's

other four variables of perceived social support, dispositional optimism, hope, perceived

burdensomeness, thwarted belongingness, and suicide ideation, mediation analyses were

conducted when controlling for social desirability within the study's four primary hypotheses.

Across the four hypotheses, social desirability was found to be insignificant in its impact on the partially mediating effect of perceived social support on the respective relationships between dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation. When controlling for social desirability, bootstrap confidence interval lower limits (LL) and upper limits (UL) were found for the indirect effect of perceived social support (M) on the relationships dispositional optimism (X) and suicide ideation (Y) (LL = -.159, UL = -.071), hope (X) and suicide ideation (Y) (LL = -.274, UL = -.137), perceived burdensomeness (X) and suicide ideation (Y) (LL = .040, UL = .123), and thwarted belongingness (X) and suicide ideation (Y) (UL = .039, UL = .193). Because these 95% confidence intervals do not include zero, the indirect effect test is significant.

Hierarchical Regression

To identify the unique variance of the predictor variables toward suicide ideation, a series of hierarchical regression was conducted following the PROCESS mediation analyses (version 3.3, model number 4). Covariate variables were not included in the mediation analyses. The first model consisted of dispositional optimism (LOT-R), hope (AHS), perceived burdensomeness (INQ), and thwarted belongingness (INQ), with suicide ideation (SBQ-R) as the dependent variable. In this model, these variables were found to be statistically significant, with a R^2 change of .163, $F(4, 344) = 24.895$, $p < .001$.

The second model introduced perceived social support (MSPSS). These results found that perceived social support added a slight increase in predictive capacity for suicide ideation as compared to the first model. The presence of perceived social support increased the percentage of variance accounted for by 1.4% at a statistically significant level. Please see Appendix B for a

visual image of the hierarchical regression model and Table 5 for hierarchical regression

coefficients. Interaction effects can be found in Appendix C.

Table 5.
Hierarchical Regression Analysis Predicting Suicide Ideation (Coefficients).

Variable	*B*	*SE B*	β	t	*p*	*R²*
Model 1	-	-	-	-	-	.428
LOT-R	-.132	.041	-.131	-2.377	.018	-
AHS	.071	.057	.070	1.258	.209	-
INQ-PB	.458	.055	.457	8.322	.000	-
INQ-TB	.210	.057	.210	3.662	.000	-
Model 2	-	-	-	-	-	.442
LOT-R	-.139	.055	-.138	-2.531	.012	-
AHS	.125	.059	.122	2.111	.035	-
INQ-PB	.445	.055	.445	8.147	.000	-
INQ-TB	.144	.061	.144	2.346	.020	-
MSPSS	.161	.056	.160	2.889	.004	-

Discussion

Results from this study found correlations between all variables in this study.

Additionally, perceived social support partially mediated the relationship with respect to the four

main hypotheses of the study. That is, perceived social support partially mediated the

relationship between dispositional optimism and suicide ideation, hope and suicide ideation,

perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide

ideation. Perhaps most notably, when all variables were considered for their impact on suicide

ideation, perceived social support uniquely contributed to the variance of the hierarchical

regression model in a statistically significant way ($R^2 = 1.4\%$). It appears then that perceived

social support serves as an important factor in the conceptualization of protection from suicide

ideation.

To revisit, the hypotheses of this study stemmed from previous literature regarding the protective nature of perceived social support, hope, and the IPTS. Principles from the IPTS characterize the importance of social connectedness as the primary driver against suicide ideation and suicide risk (Joiner, 2005). To conceptualize the partially mediating effect of perceived social support between dispositional optimism and suicide ideation, it must be recognized that dispositional optimism is a relatively stable personality characteristic; it is likely that those individuals are more likely to view their supports as positive (Carver & Scheier, 2014). Because of this, there stands the possibility that because future outcome is expected to be positive, suicide ideation and suicide risk will occur less frequently. Similarly, perceived social support partially mediated the relationship between hope and suicide ideation. Because hope differs from dispositional optimism in its inclusion of personal agency to produce positive outcomes for the future, individuals with high levels of hope may experience the perception of having a more direct and active role within their social support system (Snyder et al., 1991).

In addition to dispositional optimism and hope, the IPTS theory suggests that factors such as perceived burdensomeness and thwarted belongingness play a role in suicide ideation. In line with this theory, we found that perceived social support partially mediated the relationships between perceived burdensomeness and thwarted belongingness on suicide ideation, respectively. Had perceived social support been found to completely mediate the relationships between perceived burdensomeness and suicide ideation and thwarted belongingness and suicide ideation, a holistic revisitation to the understanding of the IPTS would be warranted. However, while these results cannot fully explain the relationships between perceived social support and suicide ideation and thwarted belongingness and suicide ideation, room should be made for the incorporation of perceived social support in the partial understanding of these respective

relationships. The social contexts of perceived burdensomeness and thwarted belonging may provide an explanation to understand these findings. Perceived burdensomeness is defined as a mental state of mind that is characterized as a belief that one's own existence is a burden to their supports and that the individual would "be better off if I were gone" (Deci & Ryan, 2000). It is conceivable that individuals may perceive themselves to be a burden on their perceived social support but view this support as positive. Similarly, thwarted belongingness, defined as the unmet need of connectedness to a valued group of people, can be understood with the presence of perceived social support (Leary et al., 1995). The feeling of low belonging or alienation alongside the perception of positive social support was correlated with lower experiences of suicide ideation. As such, the perception of positive social support, even in the presence of perceived burdensomeness or thwarted belongingness, was found to be a significant protective factor against suicide ideation. In understanding partial mediation as a whole, the remaining variance may be explained by a variable outside of the mediation model. In understanding potential missing links, theories have been designed to explain and understand this phenomenon. To potentially explain missing variance stemming from partial mediation in the present study, the Relational Regulation Theory posits that the link between perceived social support and improved mental health is explained by effective emotion regulation skills through these support networks (Lakey & Orehek, 2011).

Limitations and Suggestions for Future Research

Several limitations associated with the general research process and mediation analyses are worth noting. The use of a self-report design can bring into question the authenticity of responding due to the sensitive nature of the subject of suicide. An attempt to control this concern was made by use of the brief, four-item measure in the form of the SBQ-R. Within a

college student population and those in emerging adulthood, underreporting of suicide ideation is quite common (Goldney, Smith, & Winefield, 1991). Additionally, the sensitive subject matter of the material may lead participants to respond in a manner that was socially desirable, and this is also true outside of suicide ideation (Tourangeau & Yan, 2007). Outlier analyses and a social desirability measure were conducted to assess for socially desirable response patterns, though these analyses revealed minimal participants who met conditions for removal from analyses. These analyses indicated that some participants did respond in a socially desirable fashion, though it is worth noting that openly discussing suicide, even within a confidential context, can be challenging. Additional protections were made to assure participants of their complete anonymity prior to their completion of the survey. Regardless of the safeguards put in place to control for social desirability, it must be taken into consideration how underreporting suicide ideation and overreporting dispositional optimism, hope, and perceived social support may impact the findings of this study. Should participants respond in a socially desirable manner, the direct and indirect effects of the relationships investigated in this study may be inflated. However, while patterns of socially desirable responding may have occurred to some degree, it is important to note that it has been found that social desirability does not necessarily negatively impact self-reporting of sensitive subjects in online survey research (Crutzen & Göritz, 2010). For this study in particular, the assessment of social desirability yielded an average participant score of 17.39, indicating an average degree of concern for social desirability within their pattern of responding. As the large sample size of the study is considered alongside the average degree of socially desirable responding, it can be inferred that any impact of social desirability bias within this survey was minimal.

A second limitation of this study lies within the convenience sampling methodology. Despite the researcher's desire to study a college student population, motivation for participation was to complete a course requirement. Moreover, the sample contained demographic majorities of heterosexual, White/Caucasian females, which likely limits the generalizability of these findings to these groups of people.

The final limitation to be discussed is the statistical analyses, particularly related to the skewness of the data. Despite utilizing empirically supported data transformation procedures through SPSS, it is possible that an alternative means of data transformation could have resulted in differing interpretations. One such example of this includes breaking responses on various measures into quartiles (e.g., SBQ-R, LOT-R, AHS). Because of the fact that the interpretations of the results are limited to mediation models, the significant correlational relationships found between the variables surveyed, the results cannot be interpreted as causal in nature. Despite this limitation, however, these significant correlations help to better understand the root of the empirical theory of the IPTS and supportive literature of positive psychological variables within a college student population.

Future research should continue to work toward understanding the real-world impact of perceived social support on suicide ideation within a college student population. Examining the various types of perceived social support in the form of familial, social, and significant other support warrants further exploration, particularly with college students, as they work through the transitional nature of adjusting to the university setting. Additional future research should focus on understanding the experience of suicide ideation within the context of additional positive psychological variables. These include, but are not limited to, the variables of gratitude, positive and negative affect, meaningful and purposeful life, and grit. Lastly, because of the novelty of

exploration of these variables, the use of qualitative research methodology may help to provide a baseline understanding or insight into their impact on suicide ideation with college students.

Suicidology research will likely benefit from the understanding of how perceived social support may fit within other theories of suicide, such as the three-step theory of suicide developed by Klonsky and May (2014). As protective factors against suicide ideation are becoming further understood in the literature, developing knowledge of the bridge between ideation-to-action is becoming increasingly important as suicide rates among those in emerging adulthood continue to rise in the United States (CDC, 2017).

Clinical Implications

As the suicide rate for college students in emerging adulthood steadily rises (CDC, 2017), institutional resources within university systems should be utilized as high school students transition into college. For instance, targeted and preventative interventions aimed toward incoming first-year students that connect individuals with supports in the form of peers, faculty and staff, and/or mentors would allow for students to feel a positive sense of support from the very beginning of their college experience.

However, these forms of prevention interventions unfortunately cannot reach all students who may struggle with mental health concerns and potentially suicide risk. University counseling centers can then use outreach initiatives as a means toward raising awareness of and connecting students to mental health services available to them. As students become connected to resources, clinicians can assess for traditional risk factors for mental health concerns and depression, alongside brief, but thorough, interpersonal inventories to obtain baseline levels of perceived social support. Following these assessments, clinicians can work alongside the client to include the development of improved social support into the course of treatment.

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A holistic assessment approach during the intake interview would allow for clinicians to establish a positive therapeutic framework that assesses for a balance of symptomology and risk factors alongside character strengths, resources, and personal values. In doing so, this approach distances itself from the traditional deficit-focus of counseling and intake procedures and instead establishes a foundation that communicates to help-seeking individuals that they are not merely the product of their struggles. Moreover, this highlights the balance of positive and negative factors inherent to the human experience (Rashid, 2014). This allows, then, for perceived social support to be addressed via specific positive psychotherapeutic interventions. These can include, and are not limited to, the recognition of signature strengths within a relational context, forgiveness of self and others, micro and macro levels of gratitude, positive communication, and giving the gift of time to others, which can be implemented to assert an emphasis on interpersonal connection and belongingness.

University counseling centers in the United States often play a role in the transition for students in their adjustment to college through outreach programming at student orientation. Typically, information is provided via websites or brief workshops that often focus on common difficulties students may face during this process (e.g., increased demands, novel requirements, time management, etc.), how to establish connections on campus, and fiscal responsibility. While these difficulties need to be addressed, the experience of uprooting from preexisting support systems to a novel environment without those supports immediately present seems to have gone relatively overlooked. These sudden changes in social support dynamics may in turn alter their perceptions of social support in a negative way. It is recommended that university counseling centers strive to incorporate the evolving nature of incoming college students' social support systems. Specifically, it may be beneficial to address the reality of loss that comes from

this process, understanding that feelings of homesickness may in actuality be feelings of grief tied to the perceived loss of their support system. Addressing these dynamics may allow for the fostering of hope for these students, with the directed potential to facilitate a sense of belongingness and connection to their new environment.

Importantly, the timing of these interventions for students adjusting to college should be in accordance to when risk for suicide is highest. Research has shown that summertime is associated with significantly increased rates of suicide and decreased rates of social connectedness (Van Orden et al., 2008). Student orientation and prevention programming can be held during summer months as means of establishing immediate sense of connection, a sense of hope for a positive transition, and the potential to develop and evolve their support systems. The use of a community-based prevention framework of prevention should be utilized to reduce vulnerabilities and enhance personal assets in order to reduce the risk of suicide by way of increasing perceptions of social support (Drum & Denmark, 2012). Assuming these relationships are healthy, it is recommended that parents or guardians in the student's life be incorporated, if at all possible. It is hypothesized that if parental figures can be involved as active participants throughout this transitional process, there will be a mutual understanding of respective interpersonal needs, expectations, and means for support on and off campus for when challenges are faced from the beginning of college.

A focus on the transition for specific student populations that may be at increased risk for suicide and other mental health concerns should also be emphasized. Certain populations may not inherently have certain levels of privilege or resources that may help the adjustment process to college. Examples of demographic populations that may uniquely struggle with the adjustment process to college and in their perception of social support include those who identify

as LGBTQ, students of color, international students, graduate students, and nontraditional/adult students. With these populations, the previous recommendations of early and holistic intervention should be applied as appropriate. The creation of a welcoming environment for all students at the university should begin at and continue on from the orientation process forward to allow students to know where they can feel safe on campus. Population-specific resources (e.g., LGBT organizations, multicultural/international development programming, veteran assistance, etc.) should be made available for students in addition to the implementation and development of mentorship programs that could facilitate an immediate sense of connection and belonging.

Lastly, this study's findings yield important implications for the current state of affairs for universities, including employees not traditionally associated with providing mental health services. As the demand for mental health services continues to rise in university counseling centers, it is imperative that faculty and staff develop an understanding that they hold power to help create an environment that is welcoming to provide their students with a place they perceive to be safe and supportive. As an added layer of protection for suicide risk of students in the university environment, specific suicide prevention trainings for non-mental health professionals, akin to the Question, Persuade, and Refer training, can increase comfort with openly discussing suicide and mental health concerns, and allow for them to direct students in distress to the proper locations (Aldrich, Wilde, & Miller, 2018). The landscape of higher education places so much of its value upon the proper delivery of academic knowledge to its students, while often neglecting the basic need of belonging for students in the classroom environment. It is the hope of this author that those in positions of power can work toward creating an environment that values a balance between academic growth and authentic care for the students seated in front of them.

Conclusion

The current study adds to the suicidology and positive psychological literature by obtaining additional understanding as to the importance of perceived social support for college students and suicide ideation. Results of the study indicate that perceived social support operated as a partial mediator between the relationships of dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness and suicide ideation. This finding serves as a strong indicator that suicide ideation and risk may be reduced if this perception is met within an individual's life. This highlights an important need in the assessment of suicide in university counseling centers, as well as prevention and outreach activities. As traditional risk factors for suicide need to be continuously assessed for, it is recommended that clinicians also intentionally assess for perceptions of social support to determine if this aspect of client well-being can be improved upon within the therapeutic context as a means of prevention.

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Chapter II

Literature Review

Overview

This chapter provides an overview of the literature from the context of three variables. First, a summary of *suicide and college students* is provided, examining the strengths and opportunities for growth within this literature. Second, a review of *perceived social support*, specifically its impact on the college student population, is provided. Third, *dispositional optimism* and *hope* are defined, along with the importance of these two variables as they relate to suicide and suicide ideation. Fourth, the history and development of existing *theories of* suicide are described, along with their influence on the current study. Lastly, implications for future research, training, and clinical practice are provided.

Suicide and Suicide Ideation in College Students

Suicide ideation is defined as an enduring pattern of cognitions or thoughts related to taking one's own life (Dieserud, Roysamb, Ekeberg, & Kraft, 2001). In the United States, suicide and suicide ideation is an ongoing crisis that directly and indirectly impacts individuals in some capacity on a daily basis. Exposure and bereavement to suicide is on the rise, with more than half of Americans having been exposed to suicide and one-third having bereaved the loss of a loved one to suicide (Feigelman et al., 2018). Alongside exposure and bereavement, thoughts of suicide, referred to as suicide ideation, occur with relative frequency among the general population. These thoughts are a common and natural experience of the human condition, but suicide ideation is a primary risk factor for a suicide attempt and/or death by suicide (Brent et al., 1993). However, it is important to denote that while suicide ideation is a risk factor for suicide

planning behaviors and future suicide attempt, it does not always lead to planning behaviors or attempts (Kessler et al., 2005).

With the prevalence of suicide and suicide ideation on the rise in the Unites States, understanding its onset and course of development is a crucial task for the public mental health of its citizens. A healthy body of research has brought forth insight regarding the specific struggles and needs of college students; however, further investigation into action-oriented approaches incorporating the importance of protective factors against suicide ideation and suicide attempts (Westefeld et al., 2005; Westefeld et al., 2006) is needed. Such action-oriented approaches should include the use of concepts within the positive psychology literature with the aim of increasing hope and optimism. Positive psychotherapeutic exercises have been empirically supportive in reducing suicide ideation and increasing dispositional optimism and hope (Huffman et al., 2014).

As it relates to college students, mental health concerns such as depression, anxiety, and general stress impact these individuals at an increased rate when compared to the non-students of the general population. These elevated frequencies have been found to be primarily due to the pressure students face to succeed academically and determine the appropriate plan to follow post-graduation (Beiter et al., 2015). Symptomology of psychological distress and the onset of suicide ideation and behaviors in college students appears to occur relatively early in their educational timeline. One longitudinal study found that up to 6.4% of college students experience suicide ideation within their first year of study (Mortier et al., 2018). Another finding showed that students were found to be more likely to experience suicide ideation had they experienced a form of interpersonal trauma (e.g., dating violence, physical abuse, interpersonal betrayal) prior to the age of 17 years old. Furthermore, analysis of the 2000 National College

Health Assessment Survey revealed that 1.5% of students reported having attempted suicide over the previous year (Kisch, Leion, & Silverman, 2005).

Alongside the academic and social pressures that accompany the role of a college student, suicide and suicide ideation are consistently prevalent within this population. One study has shown than up to 6% of first-year college students exhibited current suicide ideation (Arria et al., 2009). Of this 6%, 40% of these individuals met the criteria for Major Depressive Disorder, a diagnosis in which suicide ideation is a potential symptom. These struggles do not secede upon the completion of their studies, though, as the long-term and lifetime estimations of suicide ideation, plans, and attempts often continue post-graduation. It has been estimated that the prevalence of these forms of suicidal thoughts and behaviors will be experienced by 22.3% of college students at some point throughout the lifespan (Mortier et al., 2018). This appears to be a crisis that if intervened early on in its onset, can be prevented for the long-term benefit of college graduates.

Other studies have shown even higher rates of suicide ideation among college students. Garlow et al. (2008) found 11.4% of student participants endorsed current suicide ideation over the past 4 weeks, and a 16.5% reported having had a past suicide attempt or engaged in non-suicidal self-injurious behavior. Perhaps their most alarming finding was that 84–85% of those experiencing moderate to severe depression or suicide ideation were not currently receiving mental health treatment (Garlow et al., 2008). The pattern of untreated depression and suicide ideation is concerning as the rates of suicide continue to rise in the United States, particularly with college students in emerging adulthood.

Per the United States Centers for Disease Control and Prevention (CDC; 2014), suicide is the 10th leading cause of death among all age groups and the second leading cause within the

age range of 15–34 years. Of the top 10 causes of death in the United States, suicide is the only one related to an individual's mental health. The rising rates of suicide in emerging adulthood, encompassing young adults between the ages of 18 and 24 years, have spawned an emphasis on suicide prevention efforts specific to college students. This population has seen varying rates of suicide ideation but can be approximated to be around 7.5% (Substance Abuse and Mental Health Services Administration, 2014). Other research has shown that those between the ages of 18 and 24 experience suicide ideation at nearly doubled rates than those between the ages 26 and 49 and 50 and older (Crosby, Cheltenham, & Sacks, 1999). The preventable nature of suicide, particularly of college students with access to mental health care on campus, requires a better understanding not only of the statistics behind this phenomenon, but additional ways it can be prevented on college campuses and in treatment.

Despite ability for suicide to be prevented, it remains the second-leading cause of death for undergraduate and graduate college students. Rates of suicide have shown that there is a stark difference between the suicide rates of college students and those of the general population. The National Center for Injury Prevention and Control (2015) reported the annual suicide rate of those in emerging adulthood at 14.43 per 100,000. Lipschitz (1990) described an inconsistency of previous findings of elevated suicide rates on college campuses, citing the non-representative nature of the samples as a hindrance to the ability to compare the college student population to the general population.

Several explanations have been suggested as to the reasoning behind the different suicide rates between college students and the general population. Most commonly described are the increased abilities for students to have access to mental health services, mandatory restrictions of firearm access on campus grounds, and the potential for a supportive peer environment

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(Schwartz & Whitaker, 1990; Silverman et al., 1997). Of these explanations, the restriction of firearm access appears to be the most protective, as 49.8% of all suicide deaths utilize this method (CDC, 2015). Given these findings, being enrolled as a college student may serve to be a protective factor against suicide in and of itself, as the restriction of means for suicide attempts will inherently reduce the ability for specific types of attempts (e.g., firearm). Enrollment as a college student provides an inherently protective environment against suicide, particularly because of the availability of resources (e.g., peers, faculty, staff) to recognize potential warning signs and with which to communicate distress (Drum et al., 2009). This community-based approach to suicide prevention efforts has proven to be effective in the protection of students.

Subsequent studies revealed that the rate of death by suicide within the college student population is roughly half of that exhibited by the general population, sitting approximately between 6.5% and 7.0% (Schwartz, 2006a; Schwartz, 2011). Multi-campus studies on suicide, such as the "Big Ten study," have further corroborated the decreasing trend of suicide on college campuses (Silverman, Meyer, Sloane, Raffel, & Pratt, 1997). The Big Ten study, however, was somewhat flawed in that researchers were not able to take into consideration differences between part-time and full-time students, differences in mental health services available on campus, and students who drop out from college (Silverman et al., 1997). While the Big Ten study provided an immense contribution to the literature on college student suicide, further investigation into the specific motivations, intentions, and rationale behind suicide behavior(s) and suicide ideation is needed. For instance, despite the availability of mental health services to students, there appears to be a lack of utilization for those who struggle the most with psychological stress.

Corroborating the troubling pattern of college students with depression neglecting to receive services, Furr et al. (2001) found that 53% of their multi-campus sample reported having

experienced depression since beginning college, with 9% having considered death by suicide during their time at college. Furthermore, of those students experiencing depression, 83% were not receiving counseling services. Given the wide-ranging scope of these findings and the complex nature of psychological distress experienced within this population, the treatment of suicide ideation focusing on depression alone may not fully encompass the needs of college students. Treatment modalities must assess for and incorporate a wide-ranging scope of options to manage the individual's unique presenting concern.

To highlight the importance of increasing protective factors in suicide prevention, Drum and Denmark (2012) emphasized a community-based framework, recommending that prevention efforts on college campuses focus on community-based and clinical interventions to reduce suicide risk by increasing the students' sense of connection to the university. Highlighted within the body of literature of suicide ideation of college students are the complexities and variations from campus to campus, which somewhat limits generalizability. However, there is a strong consensus that improving one's perceptions of support within their community serves as a protective factor toward suicide. Despite the body of research and statistics pointing toward a decreasing trend of suicide among college students, it is still a premature death that ends the lives of over 1,000 young adults annually.

An important distinction to make when considering the statistics and literature on college student suicide is the variance between suicide ideation and behaviors and non-suicidal self-injury. The primary distinction between these two concepts is the intent behind the thoughts/behaviors, specifically the intent for death to be caused. Suicide ideation/behaviors differs from non-suicidal self-injury in that suicide ideation is a passive thought related to killing oneself, whereas non-suicidal self-injury is a deliberate harm of one's body without the intent to

die (Favazza, 1998). Suicide ideation/behaviors and nonsuicidal self-injury often occur simultaneously within the college student population. Longitudinal data has shown that up to 6.4% of college students will experience both nonsuicidal self-injury and suicide ideation and/or suicide behaviors within their first year of schooling (Mortier et al., 2017). Because of the psychological distress college students may face during their studies, and the potentially physically harmful ways in which they may cope, it is important that researchers and clinicians understand the onset, course, and severity of these concerns.

A key component of this onset and course is within the adjustment process to college. This can be a difficult process, as students in emerging adulthood may find themselves on their own without their accustomed systems of support for the first time. Arria et al. (2009) found associations between low perceived social support, affective dysregulation, and alcohol use to be associated with suicide ideation in college students. Low levels of perceived social support are dependent upon the perception of feeling loved, esteemed, and involved with family, friends, and others (Vaux et al., 1986). Drifting from this perception through the adjustment to college can yield negative impacts on students, particularly when they may lack the skills necessary to manage emotions when they become dysregulated. Affective regulation is defined as an inability to appropriately regulate emotions and a vulnerability to irritability and negative affect (Plattner et al., 2007). For those who possess this ability to regulate their emotions, the likelihood of experiencing psychological distress or suicide ideation decreases.

However, variables such as alcohol and/or substance use may negatively impact a student's ability to engage in effective affect regulation. Research has shown a correlation between the impact of alcohol/substance use on suicide ideation, regardless of demographics. Elevated alcohol use and low levels of perceived social support in the form of family and friends

have been found to be correlated with decreased reasons for living (Lamis & Lester, 2012).

Common outcomes of untreated alcohol abuse include social isolation and the breakdown of

perceived social support systems, which may lead to increased risk for suicide, particularly due

to the disinhibiting effects of alcohol (Pompili et al., 2010). These findings suggest that when

assessing for suicide risk in college students, it is particularly important to obtain an accurate

understanding of alcohol/substance use.

The rationale behind alcohol and/or substance use's negating impact on affect regulation

stems from their effects when consumed. Elevation in alcohol use is associated with increased

impulsiveness, disinhibition, and impaired judgment (Pompili et al., 2010). These disinhibiting

factors increase one's ability to be mindful in their affect regulation process, which can lead to

the development of depressive symptoms and subsequently, suicide ideation and/or suicide

attempts. Low, moderate, and high severities of depressive symptoms are associated with the

experience of suicide ideation (Cukrowicz et al., 2011). The use of substances is particularly

concerning giving their disinhibiting effects may foster increased impulsivity and subsequently

elevated risk for attempting or completing suicide (Hirschfield & Davidson, 1988; Lipschitz,

1995). Students going through the adjustment to college often face significant changes in

personal responsibility, support systems, and exposure to unfamiliar experiences/emotional

states, which may carry increased risk for psychological distress and overall functioning.

Despite these changes, however, students may not be forthcoming to engage in help-seeking

behavior, but in risk-taking behaviors instead.

The impact suicide ideation has on college students extends to other behaviors as means

of coping with this distress. For instance, students reporting suicide ideation are more likely to

partake in risky behaviors such as carrying a weapon, riding as a passenger with a driver who has

drank alcohol, and engaging in physical violence, particularly men (Barrios, Everett, Simon, & Brener, 2000). Another study found that college students experiencing suicide ideation had increased frequency of tobacco, alcohol, and drug use (Brener, Hassan, & Barrios, 1999). In addition to engaging in more risky behaviors, suicide ideation inhibits behaviors that may be protective in nature. For instance, lower levels of exercise were found to be associated with depressive symptoms in college students, prompting a recommendation of physical health centers to screen for depression and suicide ideation on university campuses (Mackenzie et al., 2011). These risk-taking behaviors are associated with increased risks for worsening symptoms of psychological distress and suicide ideation/attempts and take away from the engagement in behaviors that serve as protective factors; or, they may hinder their desire to seek out support for psychological distress or suicide ideation.

Students may conceal thoughts of suicide for several reasons, such as a disbelief in the effectiveness of counseling services, disapproval from peers, and perceived isolation (Denmark, Hess, & Becker, 2012). These influencing factors often interfere with help-seeking behaviors and obtaining proper mental health treatment. The isolating symptoms of depression associated with suicide ideation can result in feelings of embarrassment and shame, with a preference for self-management as a result (Hom, Stanley, & Joiner, 2015). This often results in students struggling with their concerns on their own, further perpetuating a cycle of isolation and perceived distance from their support systems.

This distance can place strain upon interpersonal relationships, which can compound suicide ideation. Difficulty within interpersonal relationships and school stress has been found to be a risk factor for suicide ideation (Westefeld et al., 2005). Interpersonal dysfunctionality can result in a sense of hopelessness, which can have been found to be correlated with suicide

ideation and is hypothesized to be a primary factor in the concealment of suicide ideation and avoidance of help-seeking behaviors (Furr et al., 2001; Konick & Gutierrez, 2005). A perceived negative stigma to mental health concerns, or its treatment itself, may inhibit help-seeking behaviors in college students (Downs & Eisenberg, 2012). Resulting from these perceptions of stigma, interventions designed to reduce the stigma on university campuses have been recommended to increase the likelihood of help-seeking behaviors (Weber, Metha, & Nelsen, 1997). With the rate of suicide among college students, approximately half of the rate found in the general population, an argument could be made that protective factors are already in place for this population. However, college students from diverse backgrounds face a unique set of circumstances that can contribute to suicide ideation and suicide behaviors.

Demographic factors may place specific populations of college students at increased risk for suicide. Men and women have been found to experience depression and hopelessness in association with suicide ideation at equal rates, though predictors of suicide between gender differed (Ellis & Lamis, 2007; Stephenson, Pena-Shaff, & Quirk, 2006). Despite similar rates of suicide ideation between genders, male college students have been found to have a significantly higher death by suicide rate compared to women (Turner, Leno, & Keller, 2013). The reasoning behind this difference has been attributed to the increased likelihood for men to utilize increased lethal means when attempting suicide. Women, though, are at increased risk for suicide when having experienced a sexual assault. Having experienced an attempted sexual assault and high levels of alcohol consumption were associated with suicide for women. Conversely, men were more likely to experience suicide ideation or attempt suicide following a physical assault. This social isolation and loneliness can further contribute to suicide ideation by way of increased drug use in college students (Lamis, Ballard, & Patel, 2014). Discrimination against certain identities

can contribute to social isolation and loneliness on college campuses, particularly students of sexual identity minority status.

Sexual identity research has found a disturbing pattern of risk for those who identify as lesbian, gay, bisexual, transgender, and questioning (LGBTQ). LGBTQ individuals have an increased risk for suicide ideation when compared with a same-aged peer heterosexual population (Chakraborty et al., 2011). Associated with this finding, LGBTQ young adults are more likely to endorse increased levels of hopelessness, depressive symptoms, suicidal behavior (e.g., suicide ideation or attempt), along with decreased levels of hope (Hirsch, Cohn, Rowe, & Rimmer, 2016). Those from a rural community, versus their urban counterparts, are also at increased risk for suicide, often attributed to isolation, social factors, and limited availability to quality mental health treatment (Hirsch & Cukrowicz, 2014). Sexual minority identities are at an increased risk for suicide, particularly when combined with additional minoritized identities, such as race/ethnicity.

In addition to gender and sexual identity factors, suicide rates by ethnicity highlight disparities among different groups. Per CDC reports from the years 2000 through 2015, White Americans had the highest rate of suicide at 15.1 per 100,000, followed by American Indians at 12.6% (CDC, 2015). Asian Americans (6.4%), Hispanic Americans (5.8%), and Black Americans (5.6%) died by suicide at a significantly decreased rate. While specific reasons regarding these suicide rate discrepancies by ethnicity have been proposed, it has been hypothesized that living in rural areas and lower levels of education are possible reasons for elevated suicide rates in White and American Indian populations (Keating & Bernstein, 2016). Despite increased rates of suicide for White Americans, Black American college students have been found to experience higher rates of suicide ideation, associated with acculturative stress and

poor group identity factors (Walker, Wingate, Obasi, & Joiner, 2008). Other research shows that Black college students are more likely to utilize emotion-oriented coping, which is associated with higher rates of suicide ideation (Wang, Nyutu, & Tran, 2011).

The impact of mental health concerns and suicidality on college students is not limited to interpersonal functioning and overall well-being. The primary purpose of higher education is to prepare young adults with the knowledge necessary for leading successful lives after graduation. However, suicidality has been shown to significantly hinder academic successes in first-year college students (Mortier et al., 2015). The specific impact is seen with reductions in quality and passing grades. It was found that one in three first-year students with mental health concerns experienced a reduction in grade point average over the academic year (Bruffaerts et al., 2016). Conversely, as has been evidenced by the protective nature the college environment can provide its students, the role of connection and support to and from others when experiencing psychological distress and/or suicide ideation plays a major role in academic functioning. For students who experience these concerns, their participation in extracurricular activities (e.g., student organizations, clubs, or sports) has been shown to be associated with higher academic performance (De Luca et al., 2016). As the enrollment of students in college continues to rise in the United States, so too has the demand for mental health services on university campuses. The holistic understanding of the impact of suicide ideation and mental health concerns on its students is critical not only for overall well-being and functioning, but also for success as students and future professionals.

Theories of Suicide

To better understand and conceptualize the experience of suicide ideation, theories of suicide have been developed and researched. These provide a theoretical framework for the

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etiology and course of suicide throughout the lifespan, which, in turn, assist in the development of clinical interventions to target individuals at risk for suicide. This section will begin with a review of several major sociological, biological, and psychological theories of suicide that are applicable to the current study.

Among the earliest influential theories of suicide came from French sociologist Emile Durkheim. In his 1897 book, *Suicide*, the core of Durkheim's theory posits that suicide results from social and structural factors external to the individual. This was the first theory of suicide that set aside moralistic judgments toward the individual who attempted or died by suicide, instead focusing on the primary goal of obtaining an understanding of the reasons "why" behind this type of death. Specifically, Durkheim hypothesized that there are two primary influences of suicide: social integration and moral regulation. Social integration is described as the belongingness or connectedness a person has with their peers and community, while moral regulation is the impact the rules and norms of society have on the individual.

According to Durkheim (1897), disruptions in social integration or moral regulation can manifest into differing types of suicides. The sociological contexts of the individual are a key component within this theory and result in varying types of suicide. The first, called an egoistic suicide, is characterized by meaninglessness and isolation resulting from low social integration. The second form of suicide results from high social integration and is known as altruistic suicide. An altruistic suicide is characterized by overinvolvement and excessive value within the society, with the individual's suicide viewed as being for the good of the community.

Much like social integration, levels of moral regulation also have their own resulting forms of suicide. Suicide resulting from low moral regulation by society, known as anomic suicide, are characterized by sudden changes in the individual's status or position within the

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society. Suicides resulting from high moral regulation by society, characterized by the

individual's belief that society's norms will not allow for a meaningful life to be lived, are

known as fatalistic suicides. Durkheim's theory of suicide was tremendously influential in

conceptualizing suicide outside of the locus of the individual into one that was contextualized on

a social and psychological level. Durkheim's influence helped spawn the development and

refining of several other theories of suicide.

Expanding upon Durkheim's theory, Edwin Schneidman (1996) developed his own

theory that centered upon the psychological pain an individual may experience following the

lack of psychological needs. Under this theory, unmet psychological needs typically result in

five forms of psychological pain: 1) thwarted love, acceptance, or belonging, 2) excessive

helplessness/fractured control, 3) shame towards one's self-image, 4) grief within the context of

damaged relationships, and 5) anger/rage.

The terminology used to describe this response was dubbed "psychache" by Schneidman.

Psychache is defined as "…the hurt, anguish, or ache that takes hold in the mind. It is

intrinsically psychological – the pain of excessively felt shame, guilt, fear, anxiety, loneliness,

angst, dread of growing old or of dying badly" (Schneidman, 1996, p.13). Schneidman theorized

that when psychological needs become overwhelmingly thwarted, in conjunction to the

individual being capable of engaging in lethal self-injury (e.g., possessing the means for suicide),

suicide becomes a reality.

An important distinction is made within this theory that death by suicide is not

necessarily the goal of the individual; rather it is a means for the individual to escape their

psychological pain. While this theory holds some empirical grounding, it has been found to be

more predictive of suicide ideation in the present as opposed to past suicide attempts (Pompili et

al., 2008). There appears to be a missing link to conceptualize suicide from the Durkheim and Schneidman theories, which have been attempted to be explained through other biological, psychosocial, and interpersonal variables from other theorists.

Understanding the psychosocial aspects of suicide took form in the understanding of the role that hopelessness plays into suicidality. Inspired by the cognitive theory of depression pioneered by Aaron Beck (1987), the hopelessness theory of suicidality provided a novel context to understanding suicide (Abramson et al., 1989). A distinction in type of depression was made, characterizing suicidality as a symptom of hopelessness depression, and individuals experiencing this type of depression were theorized to be at increased risk for death by suicide.

Hopelessness within this theory encompasses two core beliefs the individual experiencing suicide ideation holds. The first is that negative outcome is likely to occur regarding something that is highly valued to the individual, and second is the likelihood of that individual changing its outcome is minimal (Abramson et al., 2000). The hopelessness theory postulates that hopelessness is an even stronger predictor of suicide than depression. The variable of hopelessness integrates within the cognitive triad explanation of depression, focusing on the negative triad of biases toward the self, world, and future.

Recent efforts have taken to task the direct impact of hopelessness on suicidality. The role that hopelessness plays in suicide has become less clear due to the findings of novel studies. While hopelessness certainly is a risk factor for suicide, a landmark article by Klonsky and May (2014) found that the presence of hopelessness does not distinguish between those who attempt suicide and those who experience suicide ideation. This finding does not necessarily invalidate the role of hopelessness in suicide; however, it does bring up further questions for the role it

holds. Noteworthy within the current survey would be the buffering impact hope or dispositional optimism has on suicidality.

Abramson et al. (1989) posited that this theory offered a psychosocial alternative theory for suicide to join alongside biological and neurological hypotheses to explain suicide. In recent years, encouraging evidence has emerged regarding the neurobiological understanding of suicide. Despite the relative debunking of the serotonin hypothesis for depression, studies have shown that abnormalities within the serotonergic mechanisms may contribute to increased risk for suicide and suicide ideation (Cowen & Browning, 2015; Pandey, 2013). These findings suggest the influence of serotonin on emotional processing may impact depression and suicide, sparking an intriguing development for the combination of psychopharmacological and psychotherapeutic treatments to suicide.

Until recently, there remained a level of uncertainty about the explicit impact of social influences, psychological pain, and hopelessness on suicide ideation, specifically, the unanswered questions of what impacts these variables and why the rate by which individuals with whom these variables directly impact them attempt and complete suicide is low. There appears to be a distinction between those who experience suicide ideation and those who attempt suicide, with key modern theories integrating the variables of psychological pain, hopelessness, and perceptions of social support. The two theories that have attempted to examine this unexplained connection to suicide attempts is that of the three-step theory (3ST) and interpersonal-psychological theory of suicide (IPTS) models for suicide. These theories directly address the impact one's social support system has on suicide ideation and the importance social connectedness plays in protecting oneself from death by suicide.

Joiner's (2005) development of the IPTS is founded upon two interpersonal constructs that account for suicide ideation, with a third construct accounting for increased risk for a suicide attempt. The IPTS is arguably the most influential theory of suicide to date, expanding the reaches of suicidality research from theory to understanding the link between suicide ideation to the lethality of a suicide attempt. A review of a decade's worth of research has indicated support for the foundation of the IPTS and the variables within the theory (Chu et al., 2017). This theory was founded upon the importance of one's perceptions of their social connectedness and was the first theory to identify a concrete distinction between suicide ideation and a suicide attempt. For a suicide to occur, Joiner (2005) described three factors that must be present.

The first factor that must be present is that of perceived burdensomeness. Perceived burdensomeness is defined as a mental state characterized by apperceptions that others would "be better if I were gone" (Deci & Ryan, 2000). This variable that people's perception that their own existence negatively impacts their support system has shown the most robust support for the prediction of suicide ideation. Additionally, this perspective supports the notion that people in their life would be better off if they were deceased. This variable has been shown to be a strong contributor to suicide ideation. In a review of the predictions of the IPTS, the connection between perceived burdensomeness and suicide ideation was strongly supported (Cero et al., 2015; Ma et al., 2016). The relationship between perceived burdensomeness and suicide ideation is strongly supported in the literature, which suggests the clear importance of one's perceptions of social support plays a major factor in the development of suicidal ideation.

However, perceived burdensomeness is not the only variable needed for increased risk of suicide ideation. Joiner (2005) theorized that a low sense of belonging/social isolation, or "thwarted belongingness," must be held in the individual's mindset for suicide ideation to occur.

Thwarted belongingness is defined as a psychologically painful mental state that results when the need for connectedness or need to belong is unmet (Leary et al., 1995). One's connectedness to important persons in their life serves as a protective factor under the IPTS. The loss of connection has been shown to be associated with increased suicide ideation, particularly with college students. During summer months of the academic year, suicide ideation has been found to increase significantly as connectedness to one's peer group drops (Van Orden et al., 2008). Within the IPTS, the variables of perceived burdensomeness and thwarted belongingness combined equate to the development of suicide ideation. For a suicide attempt to occur, however, an additional variable is required.

Joiner (2005) suggested that an individual must have acquired the ability for lethal self-injury, which is often associated with repeated exposure to psychological/physical pain and fearful stimuli throughout the lifespan, with more exposure adding to the risk for acquired lethal ability for lethal self-injury. Excessive experiences of psychological pain may develop into a level of desensitization that can lead to increased risk-taking behaviors, especially if lethal means such as a firearm are readily accessible. This theory is the first to explain the ideation-to-action framework for suicide that is found in the 3ST (Klonsky & May, 2014). Within the IPTS, perceptions of low belongingness and high burdensomeness combined with the acquired ability for lethal self-injury is theorized to lead to suicide. This theory suggests that one's acquired ability for lethal self-injury cannot be lessened through intervention; however, one's perceptions of social support can be addressed.

The IPTS has been studied significantly over the previous 15 years since its inception. Interestingly, researchers have found that the core tenets of other theories of suicide integrate well within the IPTS. The effects of the hopelessness theory, for instance, have been shown to

be mediated by the IPTS variables of perceived burdensomeness and thwarted belongingness (Kleiman, Law, & Anestis, 2014). This suggests the utility of studying the variables of these theories together rather than as separate entities. Additionally, the variable of hope has been found to be less influential as previously discovered in the moderation of the relationship between perceived burdensomeness, thwarted belongingness, and suicide ideation (Cheavens et al., 2016). Yet to be determined is a unique distinction between the impact of dispositional optimism versus hope on the IPTS variables.

The IPTS laid a major foundation for the field of suicidology and has influenced researchers to expand upon this work. Stemming from the foundational base of IPTS, Klonsky and May (2014) established a framework for suicide that addressed what differentiates those who attempt suicide versus those who merely experience suicide ideation. In a 2015 article, Klonsky and May outlined their argument in favor of an "ideation-to-action" framework that follows a stepwise pattern they postulated should be at the core of all suicide research. The ideation-to-action framework postulates there is a major distinction between the development of suicide ideation and the progression from suicide ideation to a suicide attempt (Klonsky, May, & Saffer, 2016). The main takeaway from this theory is that the primary risk factors for suicide (e.g., depression, hopelessness, psychological pain, etc.) are predictive of suicide ideation, but are not necessarily predictive of suicide attempts (May & Klonsky, 2016).

The proposed model of 3ST differentiates from the IPTS in its explanations of suicide ideation development and the shift from suicide ideation to a suicide attempt. The first step of the 3ST is that of the development of suicide ideation, which Klonsky and May (2015) describe as the presence of both pain of any source (e.g., psychological, physical, interpersonal, etc.) in

combination with that of hopelessness. The authors posited that the combination of these two variables is essential for the development of suicide ideation.

The second step of the 3ST places emphasis on connectedness. Connectedness within this framework does not necessarily require interpersonal connectedness, as the IPTS requires, but rather any form of connectedness within the individual's life (e.g., career, hobbies, relationships, etc.). The level of one's connectedness plays a major role in one's capability for suicide. For instance, if one has high levels of both pain and hopelessness, but also feels a sense of connection, the level of suicide ideation is likely to remain at a moderate level as opposed to elevate to severe.

Step three of the 3ST concentrates on the progression from suicide ideation to an attempt, primarily focusing on the capability for one to make a suicide attempt. The 3ST differs from Joiner's (2005) IPTS in that rather than focusing solely on acquired capability, two other variables of capability contributes to one's capacity to attempt suicide. This is broken down into three primary capacity variables: dispositional, acquired, and practical (Klonsky & May, 2015). Dispositional capacity primarily refers to genetically driven variables, such as a biological condition for low pain sensitivity. Acquired capacity refers to a learned or experienced habituation to pain, fear, and death. Lastly, practical capability refers to the factors that may make suicide attempts more accessible, such as the access to firearms. Despite the 3ST being a recent development in the field of suicidology, it shows great promise in understanding and conceptualizing suicide, with important implications for its prevention.

These theories provide a framework for conceptualizing both the risk factors for suicide ideation and suicide attempts. In understanding these variables on a theoretical level, it allows for their impact to be explored within a college student population, specifically, the ability to

determine the impact of one's perceived social support, optimism, and hope within these frameworks.

Protective Factors and Suicide Prevention

While there is an extensive body literature dedicated to risk factors, less emphasis has been dedicated to protective factors that may act as buffers against suicide and suicidal ideation. A growing focus within the literature is emerging on protective factors as an additional approach to suicide prevention efforts. Utilizing a strengths-based approach, rooted in core concepts of positive psychology, has fueled this direction. The theory behind positive psychology lies not in the neglect of individual weaknesses, but rather through the incorporation of strengths to maintain meaning and purpose in one's life (Duckworth, Steen, & Seligman, 2005). By emphasizing strengths to create a balance alongside perceived weaknesses, individuals can work toward creating meaning in their lives that can lead to substantial and long-lasting growth.

Suicide prevention literature first engaged in this shift from risk factors to protective factors several decades ago. Linehan et al. (1983) pioneered the investigation of protective factors against suicide in their development of the Reasons for Living Inventory (RFL). The RFL was the first measure to investigate an individual's reasons not to die by suicide, suggesting its importance to those struggling with suicide ideation. One of the primary focal points within the RFL scale is within interpersonal contexts, specifically family and social domains. The RFL was later adapted to assess the specific protective factors for college students. Gutierrez et al. (2002) narrowed the foundation laid by the RFL with the development of the Reasons for Living Inventory for Young Adults (RFL-YA). The creation and empirical testing of these inventories has helped identify protective factors that may act as a buffer from the escalation of suicide

ideation to a suicide attempt. In doing so, these inventories assess protective factors and allow for interventions to target areas that can be improved upon.

Further research has applied core concepts of positive psychology into a specific, strengths-based prevention method for suicide and suicidal ideation within the college student population. In a comparison between younger and older adults, older adults held a higher moral objection to suicide and expressed child-related concerns as reasons for living (Miller, Segal, & Coolidge, 2001). This finding indicates that those who are younger in age may be at an increased risk for suicide due to it becoming more normalized and removed from an immoral perspective. However, while younger adults may be at increased risk for suicide, their perceptions of social support can serve as a major protective factor. College students who perceived their social support system as emotionally responsive reported increased reasons for living and were at lesser risk to experience suicide ideation (Hope & Smith-Adcock, 2015).

Additional demographic distinctions between reasons for living have also been explored within the literature. Gender differences have found that women tend to express higher levels of survival and coping beliefs, responsibility to family, child-related concerns, and fear of suicide as compared to men (Ellis & Lamis, 2007; Lamis & Lester, 2013). Other cultural variables have been shown to view reasons for living in a different light. For instance, family support, an unfavorable view of suicide, and religion have been identified as reasons for living in a Black female college student sample (Marion & Range, 2003; Wang, Wong, Tran, Nyutu, & Spears, 2013). These findings reveal an important takeaway for understanding suicide in that suicide can impact people of various demographics and backgrounds, but it impacts them in a way that is unique to their cultural development and socialization.

To understand the rationale behind peoples' reasons for living, an examination of the role character traits may have in the prevention of suicide is warranted. For instance, trait hope is a variable that has shown to be an effective buffer against depressive symptoms when experiencing a negative life event (Visser, Loess, Jeglic, & Hirsch, 2012) and effective in decreasing suicide risk (Chang, Yu, Kahle, Jeglic, & Hirsch, 2013). Additionally, existential and spiritual well-being have been shown to serve as a protective factor in college students, as well as forgiveness of self, others, and a belief of being forgiven by God (Hirsch, Webb, & Jeglic, 2011; Taliafferro, Rienzo, Pigg, Miller, & Dodd, 2009). More research is needed to better understand the link behind character traits and reasons for living, but there appears to be a link between the character traits one possesses and their reasons for living.

The literature on suicide and college students is extensive and has helped shape the way it is conceptualized and treated within the university setting. The university setting inherently offers several protective factors to suicide, such as access to mental health treatment, community support, and the restriction of lethal means on campus. Individual character traits and strengths, particularly those often utilized within the field of positive psychology, appear to be a growing area field of research to aid in suicide prevention efforts and enhance reasons for living. Despite these protective factors, however, college students face unique challenges and stressors that can impact their psychological well-being. Two key variables, perceived social support and dispositional optimism, may serve as additional resources for college students in the prevention of suicide.

Perceived Social Support

Consistently throughout the literature on suicide, social support has been found to be one of the strongest protective factors for suicide ideation and lifetime attempts across demographics.

As it relates to the emerging adulthood and college student population, there appears to be a profoundly strong influence (Kleiman & Liu, 2013; Miller, Esposito-Smythers, & Leichtweis, 2015). Perceived social support is a unique variable in that it is multifaceted and varies depending upon the individual. Traditionally, perceived social support has been defined as coming in the form of friendships, family members, or a significant other, and one's perception of whether their social support is positive or negative is subjective to the individual (Zimet et al., 1988). Mounting from empirical support of the positive impact social support can have on psychological well-being, it has become a particularly salient area of study for college students struggling with suicide ideation.

One of the more difficult tasks a college student faces starts with the initial adjustment in their identity as a college student. Given the struggles that can come with this transition to higher education, students who perceive their social support to be positive are less likely to experience psychological and academic distress (Laible, Carlo, & Raffaelli, 2000; Lidy & Kahn, 2006). The importance of perceived social support can protect against the difficulties of adjustment if students do not feel that they are alone in this process. If they do begin to struggle, however, perceived social support has shown to have an impact on their resiliency. Lower levels of suicidal ideation among college students have been associated with positive emotional, informational, and tangible support from peer relationships and university counseling centers (Hirsch & Barton, 2011).

The reasoning behind understanding the spectrum of perceived social support varies, though there is support for it stemming from one's childhood development with attachment figures. One study has shown that secure attachment to parents was correlated with positive perceived social support and substantially improved adjustment to the college environment

(Larose & Boivin, 1998). When students perceive their support as positive and present, they are more likely to feel a sense of belonging and connection to the university, which can play a role in reducing suicide ideation in college students. Ploskonka and Servaty-Seib (2015) found that belongingness made a significant contribution to decreasing suicide ideation in college students. Considering the modifiable nature of both one's actual social support and perceived social support, emphasis upon this variable in suicide prevention programming should be universal.

When perceived social support is not present, negative consequences can be observed. It has been found that help-seeking behaviors are hindered by a perceived sense of burden on the social support system, which leads to isolation and an individualized struggle with one's distress (Lamis & Lester, 2013). The importance of increasing college students' perceptions of social support and belongingness can go a long way for reducing suicide ideation within this population. The phenomenon of decreased help-seeking behavior with elevated levels of suicide ideation has been described as "help-negation," with individuals who have higher levels of positive perceived social support being more likely to seek mental health treatment (Yakunina, Rogers, Waehler, & Werth, 2010). Healthy communication with supports, especially family, may prevent against the avoidance of help-seeking behaviors. Family support is correlated with increased use of mental health services by adolescents struggling with suicide ideation (LeCloux, Maramaldi, Thomas, & Wharff, 2016). As with many aspects of social support, it varies by cultural identities and demographics. Asian-American college students were found to be less likely to be advised by their support system, specifically family members, to seek counseling services in comparison to White American college students (Wong, Brownson, Rutkowski, Nguyen, & Becker, 2014). Perceived or actual support from family may also negate the need for traditional mental health services. Within a Black college student population, a strong family

support system has been associated with lower experiences of suicide ideation and depression

(Harris & Molock, 2000). These studies show that perceived social support is an important

factor that impacts suicide ideation and psychological distress; however, the perception is unique

to the individual depending upon various cultural and identity variables.

A sense of isolation, lack of connection to a community, and low levels of perceived

social support are associated with increased risk for suicide. The IPTS (Joiner, 2005) centers

around the concept of social isolation and social connectedness and posits that a sense of

belongingness plays a key role in the prevention of suicide. Group cohesion, as evidenced by

moments of connection and unity, such as sports fandom, has revealed local suicide rates

decrease during major events like the Super Bowl (Joiner, Hollar, & Van Orden, 2006). The role

of belongingness and connectedness plays a significant role in the well-being of college students.

Across semesters, decreased levels of suicide ideation are accounted for by a sense of

belongingness and connectedness to others while on campus (Van Orden et al., 2008). An

additional factor of the IPTS, perceived burdensomeness, is the view that one's existence places

a burden upon family, friends, and society. This can stem from poor support from family and

friends, which has been linked with increased level of mental and physical health symptoms

(Christensen, Batterham, Mackinnon, Donker, & Soubelet, 2014).

Positive perceptions of social support can play a key role in the prevention of suicide

among college students. It has been shown to moderate the relationship between depressive

symptoms and hopelessness (Lamis, Ballard, May, & Dvorak, 2016), decrease the risk of suicide

for both men and women (Poudel-Tandukar et al., 2011), and reduce the risk of a suicide attempt

in adolescents living with limited means and resources (Farrell, Bolland, & Cockerham, 2014).

In sum, one's perceptions of social support can be a deciding factor in healthy functioning as a

college student. Negative perceptions of social support align with this finding when college students lack connection to others and their environment. It has been found that connectedness provides a strong buffer for students in distress, particularly those experiencing suicide ideation (Drum et al., 2017).

These positive perceptions of social support have also proven to have additional buffering effects when experiencing suicide ideation. Direct intervention may not be the first step that needs to be taken for support to be felt. College students report that empathic and thoughtful statements received from family, friends, and personal resources were most helpful in keeping them alive (Knott & Range, 1998). Perceived social support has shown to moderate impulsivity and suicide risk (Kleiman, Riskind, Schaefer, & Weingarden, 2012), promote resiliency when paired with positive life events (Kleiman, Riskind, & Schaefer, 2014), and increase self-esteem (Kleiman & Riskind, 2013). These protective benefits of perceived social support are witnessed throughout literature studying suicide risk. A qualitative study by Garcia-Williams and McGee (2016) found that when a friend or family member disclosed suicide ideation to them, the most ideal response was characterized as empathic, which led to increased interpersonal support and if necessary direct intervention. The literature shows strong evidence behind the impact of perceived social support as a protective factor for suicide and suicide ideation. Because of this, the impact of perceived social support in these contexts is vital for incorporation in suicide prevention interventions. The relationship between perceived social support and suicide is undeniably strong, particularly as it relates to college students; however, the inherent subjectivity in perceived social support influences an individual's perception of it.

Perceived social support is unique in that it is quantifiable to individuals based upon their own perceptions. Typically, if individuals believe their support system is positive and caring,

they are likely to be at a decreased risk for suicide. However, while the university setting is an

inherently community-based environment, the transition to college can be difficult for students,

often resulting in feeling isolated or lonesome. As Joiner (2005) hypothesized with the IPTS,

those who feel a low sense of belonging and social alienation are at an increased risk for suicide.

It follows then, that emphasizing perceived social support within prevention efforts will decrease

suicide risk for college students and encourage help-seeking behaviors, in addition to reducing

feelings of hopelessness and depressive symptoms associated with suicide. With perceived

social support being more of an environmental variable moderating suicide risk, a question arises

as to what individual traits can influence suicide risk. One's perspective outlook toward the

future is one that relates strongly with perceived social support.

Dispositional Optimism and Hope

Dispositional optimism is defined as a relatively stable personality characteristic in which

an individual expects future outcomes to be positive (Carver & Scheier, 2014). Despite their

conceptual proximity, dispositional optimism differs from the concept of hope in that it

incorporates one's ability to reach goals along with the self-efficacy to implement what is

necessary to achieve these goals (Snyder, Rand, & Sigmon, 2002). The constructs of hope and

optimism have been frequently studied, often simultaneously, about their impact on depressive

symptoms and suicide ideation. Both hope and optimism have been shown to offer unique

predictive proportions of variance of an individual's psychological and physical well-being

(Alarcon, Bowling, & Khazon, 2012; Gallagher & Lopez, 2009; Scheier & Carver, 1992).

While the variables of hope and optimism may appear similar, they have their own

unique impact on suicide and suicide ideation. When controlling for depression, the presence of

hope and optimism has shown to weaken the relationship between rumination and suicide

ideation (Tucker et al., 2013). Both constructs have been shown to reduce burdensomeness and thwarted belongingness in a clinical sample of individuals receiving psychotherapy, with regression analyses revealing optimism to be more of a protective factor for interpersonal suicide risk (Davidson & Wingate, 2013). Conversely, hope has been found to be a better predictor of life satisfaction in comparison to optimism (Bailey, Eng, Frisch, & Snyder, 2007) and optimists consistently rate their past, present, and future satisfaction more positively in comparison to pessimists (Busseri, 2013). The convergence of hope and optimism significantly predicted depressive symptoms, as did both hope and optimism each on their own standing (Chang, Yu, & Hirsch, 2013).

The positive impact dispositional optimism has on psychological and physical well-being has been attributed to effective strategies utilized to cope with stress (Scheier & Carver, 1985; Scheier & Carver, 1992). The use of optimism as an explanatory style of negative life events has shown to be beneficial in several contexts. Within the family dynamic, an optimistic explanatory style, or reframing of a negative event, was found to have a significant effect on family coping and family functioning (Sahin, Nalbone, Wetchler, & Bercik, 2010).

The role of dispositional optimism as it relates to suicide and suicide ideation has shown much promise in recent research. Optimism and positive future thinking have been found to be associated with levels of hopelessness (O'Connor & Cassidy, 2007) and moderates the relationship between hopelessness and suicide ideation (Hirsch & Conner, 2006). The externalization of negative life events using an optimistic explanatory style has been linked with a decreased risk of a suicide attempt (Hirsch & Rabon, 2015). Hirsch et al. (2007) found individuals exhibiting dispositional optimism to have reduced risk for suicide ideation and suicide attempt when experiencing low to moderate negative life events. The use of positive

reappraisal of negative life events from an optimistic explanatory style has been recommended to be incorporated for those struggling with psychological distress associated with negative life events (Hirsch, et al., 2009). When controlling for age, gender, depression, and hopelessness, optimism is inversely associated with suicide ideation (Hirsch, Connor, & Duberstein, 2007). Given the role that hopelessness plays in the etiology of suicide ideation, the link between optimism and hopelessness is monumental for the formation of suicide prevention intervention initiatives. Optimism and future orientation have been shown to be associated with both depressive symptoms and suicidal behavior (Chang et al., 2013). Additionally, dispositional optimism weakens the relationship between stress and suicide ideation (Feng, Li, & Chen, 2015). Because of the strong documented relationship between dispositional optimism on suicide and suicide ideation, it appears to suggest clinical utility in suicide prevention efforts in the university setting.

Dispositional optimism is a personality characteristic that plays a major role in one's outlook toward the future. As it relates to suicide and suicide ideation, the role this variable has is quite valuable. In addition to the reduction of hopelessness and risk for a suicide attempt, dispositional optimism increases an individual's well-being and can be utilized as a coping strategy for psychological distress. Despite the positive impact dispositional optimism can make, its relationship with perceived social support has been overlooked in the body of literature. Because of this, there appears to be an untapped avenue of exploration incorporating both dispositional optimism and perceived social support as it relates to suicide ideation.

In addition to dispositional optimism, hope is known to play a role as a protective factor against psychological distress and suicide ideation. Hope is traditionally defined as goal-oriented thinking in which people perceive that they can produce routes to desired goals and the

requisite motivation to use those routes (Snyder et al., 1991). To further break down hope, the literature has conceived this variable as both an emotion and a cognition (Lopez, Snyder, & Pedrotti, 2003). This brand of self-efficacy extends its benefits beyond serving as a protective factor for psychological distress. As an emotion, hope is a feeling stimulated by the circumstances by one's environment. Alternatively, as a cognition, hope is cultivated through thoughts or beliefs that push an individual toward their goals. This emphasis on emotion and cognition, in addition to the ability to achieve goals in the future, holds a significant impact on maintaining and improving one's physical health in addition to psychological health (Scioli et al., 2016). At the core of hope, holding positive views toward the future in conjunction with personal agency allows for alternative pathways to be developed. This has been conceptualized within hope theory to account for overcoming difficult challenges for people with high levels of hope (Snyder et al., 1991).

Hope has been shown to yield important benefits to students in terms of both psychological functioning and academic performance. Higher than average levels of hope have been found to be associated with higher school engagement, academic achievement, life satisfaction, self-worth, and decreased mental health symptomology (Marques et al., 2015). These findings are particularly important as it relates to suicide ideation. Within the constructs of the IPTS, the variables of hope and optimism were each uniquely found to negatively relate to thwarted belongingness, perceived burdensomeness, and suicide ideation, but not for the acquired capability for suicide (O'Keefe & Wingate, 2013). This suggests an important distinction that while hope may not serve as a preventative measure for exposure to psychological pain, it can help mitigate the occurrence of precursors to a suicide attempt.

Future orientation, whether it be in the form of optimism or hope, has a significant impact on overall well-being. Both hope and optimism have long been studied as potential explanations of how behaviors are shaped in addition to enhancing wellness. A recent study found that hope and optimism are simultaneously intrinsic to each other, as these two constructs share similar properties (Fowler et al., 2017). Specifically related to suicide ideation, the shared relationship of optimism and hope may hold an important impact. Optimistic college students with high levels of hope have been shown to have both lower levels of depressive symptoms and minimal, if any, suicide ideation (Chang et al., 2017). Optimism has also been shown to reduce the impact of hopelessness and suicide ideation (Bryan, Ray-Sannerud, Morrow, & Etienne, 2013). Based upon these findings, it is worth investigating an individual's hope and optimism and concurrent impacts on future-oriented goals or states of mind, such as its relationship to perceived social support and suicide ideation.

Conclusion and Research Questions

While research has brought forth great insight regarding the struggles and needs of college students, further investigation into positive individual characteristics serving as protective factors to suicide and suicide ideation has shown promise. Suicide is a prevalent concern on university campuses and counseling centers, and the development of intervention and prevention models utilizing a strengths-based approach within a positive psychological framework is necessary for the reduction of suicide for college students. The present study seeks to investigate whether perceived social support mediates the relationships between dispositional optimism and suicide ideation, hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation.

Chapter III

METHOD

This chapter will outline the methodology utilized to answer the research questions investigating the mediating effect of perceived social support on the relationship between dispositional optimism and suicide ideation in a sample of university students. As indicated in chapter two, current literature on suicide ideation has been influential in the understanding of how an individual's strengths can serve as protective factors against suicide and suicide ideation. The current study examines the roles of perceived social support and dispositional optimism on suicide ideation in a college student population. In this chapter, an overview of the research design is provided along with a description of the participant sample, instruments utilized to measure target variables, and data analysis.

The literature summarized in the previous chapter related to the protective effects of perceived social support, dispositional optimism, and hope as protective factors against suicide ideation and perceived burdensomeness/thwarted belongingness influenced the development of the four hypotheses for this study. Because of the consistency within the literature highlighting the benefits of perceived social support on psychological well-being, the following correlational hypotheses are proposed:

H_1: Having higher levels of perceived social support will mediate the relationship between dispositional optimism and suicide ideation.

H_2: Having higher levels of perceived social support will mediate the relationship between hope and suicide ideation.

H_3: Having higher levels of perceived social support will mediate the relationship between perceived burdensomeness and suicide ideation.

H_4: Having higher levels of perceived social support will mediate the relationship between thwarted belongingness and suicide ideation.

Participants

Three hundred forty-nine students from a public, mid-sized, rural university in the Southeastern United States participated in this study. Participants were collected via a convenience sample and received course credit for their participation in the study. Advertisement for the study was placed through a research participation scheduling system (SONA), where the students have the option to participate in various studies through the university. The age of the majority of participants were between the ages of 18–21 years old, with the majority being 18 years old ($n =151$, 43.3%). Participants were primarily in their first year of college ($n =196$, 56.2%) and identified their biological sex as female ($n = 279$, 79.9%). Regarding self-identified sexual orientation, the majority of participants responded as heterosexual ($n = 296$, 84.8%), with 19 participants identifying as bisexual (5.4%), 16 identifying as homosexual (4.6%), six identifying as questioning (2.0%), and five identifying as asexual (1.4%). Participant relationship status was primarily single ($n = 190$, 54.4%) with 41.5% identifying as being in a relationship ($n = 145$), 2.3% identifying as engaged ($n = 8$), and 1.1% reporting being married ($n = 4$). With regards to racial identity, 74.5% of participants were White ($n = 260$), 15.2% were Black or African American ($n = 53$), and 5.4% were multiracial ($n = 19$). Concerning geographic location, 47.9% identified as growing up in a rural area ($n = 167$), 41.3% reported urban ($n = 144$), and 10.6% in metropolitan ($n = 37$). A thorough breakdown of participant demographics can be seen in Table 6.

Table 6.
Demographics.

Demographics	*N*	%
Age		
17	4	1.1
18	151	43.3
19	64	18.3
20	34	9.7
21	35	10.0
22	15	4.3
23	3	.9
24	2	.6
25	1	.3
27	1	.3
38	1	.3
No Response	38	10.9
Year in College		
First Year	196	56.2
Second Year	49	14.0
Third Year	48	13.8
Fourth Year	44	12.6
Fifth Year	9	2.6
Graduate Student	1	.3
Other	1	.3
No Response	1	.3
Biological Sex		
Female	279	79.9
Male	65	18.6
No Response	5	1.4
Sexual Orientation		
Asexual	5	1.4
Bisexual	19	5.4
Heterosexual	296	84.8
Homosexual	16	4.6
Other	7	2.0
Questioning	6	1.7

Race

American Indian or Alaska Native	1	.3
Asian Indian	1	.3
Black or African American	53	15.2
Black or African American, Indian or Alaska Native, Asian Indian	1	.3
Chinese	2	.6
Filipino	2	.6
Other Asian	1	.3
Vietnamese	2	.6
White	260	74.5
White, American Indian or Alaska Native	2	.6
White, Black or African American	10	2.9
White, Black or African American, American Indian or Alaska Native	1	.3
White, Black or African American, Chinese	1	.3
White, Filipino, Japanese	1	.3
White, Japanese	1	.3
White, Korean	1	.3
White, Native Hawaiian	1	.3
No Response	8	2.3

Hispanic, Latino, or Spanish Origin		
No, not of Hispanic, Latino, or Spanish Origin	321	92.0
Yes, Cuban	3	.9
Yes, Mexican, Mexican-American, Chicano	7	2.0
Yes, other Hispanic, Latino, or Spanish origin	12	3.4
Yes, Puerto Rican	4	1.1
No Response	2	.6
Geographic Location of Upbringing		
Metropolitan	37	10.6
Rural	167	47.9
Urban	144	41.3
No Response	1	.3
Relationship Status		
Single	190	54.4
In a relationship	145	41.5
Engaged	8	2.3
Married	4	1.1
Other	2	.6

Note: % = percentage of total sample.

Measures

Five self-report measures were used in this study. The *Multidimensional Scale of Perceived Social Support* (Zimet, Dahlem, Zimet, & Farley, 1988) assessed perceived social support, the *Life Orientation Test–Revised* (Scheier, Carver, & Bridges, 1994) assessed dispositional optimism, the *Suicide Behaviors Questionnaire–Revised* (Osman et al., 2001) assessed the presence or absence of suicide ideation or suicide behaviors, the *Adult Hope Scale* (Snyder et al., 1991) assessed hope, and the *Interpersonal Needs Questionnaire* (Van Orden et al., 2012) assessed perceived burdensomeness and thwarted belongingness. A demographic survey was also be administered, collecting information related to age, year in college, gender,

racial identity, and sexual orientation. To assess for social desirability in response patterns to the

survey, the 33-item *Marlowe-Crowne Social Desirability Scale* (Crowne & Marlowe, 1960) was

administered. A total of 93 items were included on the survey, which were administered through

a secure survey website Qualtrics. The complete survey took approximately 10-20 minutes to

complete.

Perceived Social Support. Perceived social support was measured using the

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). The MSPSS

is a 12-item measure with Likert-type responses ranging from 1 (*Very Strongly Disagree*) to 7

(*Very Strongly Agree*), designed to assess personal perceptions of social support. The MSPSS

assesses perceived social support from three primary sources: (a) family, (b) friends, and (c) a

significant other. A sample item from the MSPSS is, *I get the emotional help and support I need*

from my family. A scaled score for each of these three primary sources of perceived social

support is obtained. A total score for overall perceived social support is generated by summing

the scaled scores of the family, friends, and significant other domains of perceived social

support. The MSPSS was initially normed on college students and displays levels of internal

consistency, with a Cronbach's alpha of .88 and a test-retest reliability of .85. Perceived social

support has been measured by the MSPSS in several studies investigating its effect on suicide

ideation, with the consensus being made that perceived social support can moderate the

relationship between depression and suicide ideation, acting as a protective factor for suicide

(Kleiman, Riskind, & Schaefer, 2014; Kleiman & Riskind, 2012; Kleiman et al., 2012; Lamis et

al., 2016). Construct validity for the MSPSS was found to be inversely related to depression ($r =$

$-.13, p < .05$) (Zimet et al., 1988). In the current study, the MSPSS had a Cronbach's alpha of

.931. When considering these findings of the important role perceived social support plays as it

relates to suicide ideation and suicide, further exploration as to its protectiveness is necessary. Furthermore, the norming and its use of the MSPSS within the college student population, specifically within the suicide literature, suggests its utility for assessing perceived social support in this study.

        Optimism. Dispositional optimism was measured using the Life-Orientation Test– Revised (LOT-R; Scheier et al., 1994). The LOT-R is a 10-item measure with a 5-point Likert-type response ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*) designed to assess dispositional optimism versus dispositional pessimism. The language of the items is uniquely phrased to assess for optimism (three items) and pessimism (three items). The remaining four items are neutrally phrased to serve as fillers. Items assessing optimism include 1*) In uncertain times, I usually expect the best*, 4) *I'm always optimistic about my future*, and 10) *Overall, I expect more good things to happen to me than bad*. Items assessing pessimism include 3) *If something can go wrong for me, it will*, 7) *I hardly ever expect things to go my way*, and 9) *I rarely count on good things happening to me*. Filler items include 2) *It is easy for me to relax*, 5) *I enjoy my friends a lot*, 6) *It's important for me to keep busy*, and 8) *I don't get upset too easily*. An overall score is obtained by first reverse coding the three items assessing pessimism and summing the reverse-coded pessimism items with the optimism items. Filler items are not included in the overall score. Higher overall scores are indicative of increased levels of dispositional optimism, with lower scores indicative of decreased levels of dispositional optimism. The score is considered to be continuous, as there is no benchmark for being either an optimist or a pessimist. The LOT-R displays acceptable levels of internal consistency, with a Cronbach's alpha of .78 and a test-retest reliability of .79 (Scheier et al., 1994). The LOT-R was initially normed on college students and has since been used to assess dispositional optimism and

its impact on suicide ideation (Hirsch et al., 2007;; Hirsch & Connor, 2006). The LOT-R was

found to have strong convergent validity with the original LOT ($r = .95$) and discriminant

validity with neuroticism assessed by the Guilford-Zimmerman Temperament Survey ($r = -.43$)

and Eysenck Personality Questionnaire ($r = -.43$) (Scheier et al., 1994). In the current study, the

LOT-R had a Cronbach's alpha of .793. These studies found that dispositional optimism was

associated with decreased thoughts of suicide and moderates the relationship between

hopelessness and suicide ideation. With a foundation of literature behind the use of the LOT-R,

particularly within the suicide literature, there appears to be a fit in its use to assess for

dispositional optimism in this proposed study.

Suicide Ideation and Suicide Behaviors. The presence of suicide ideation or suicide

behaviors was measured using the Suicide Behaviors Questionnaire–Revised (SBQ-R; Osman et

al., 2001). The SBQ-R is a four-item measure designed to assess four different dimensions of

suicidality: (a) lifetime suicide ideation and/or suicide attempt, (b) frequency of suicide ideation

over the past year, (c) the level of threat of a suicide attempt, and (d) self-reported perceived

likelihood of suicide behavior in the future.

The SBQ-R consists of two questions utilizing a Likert-type response and two questions

utilizing a single answer multiple choice response. Higher scores are indicative of greater

suicide ideation and/or suicide behaviors. The SBQ-R total score consists of (a) lifetime suicide

ideation or suicide attempts (*Have you ever thought about or attempted to kill yourself?*), (b) the

experience of suicide ideation over the past year (*How often have you thought about killing*

yourself in the past year?), (c) openness with others regarding their experience of suicide

ideation or intent to die by suicide (*Have you ever told someone that you were going to commit*

suicide, or that you might do it?), and (d) the likelihood of a future suicide attempt (*How likely is*

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it that you will attempt suicide someday?). The SBQ-R was normed for use with multiple

populations, including college students, and displays acceptable to good internal consistency

from .75 to .80, high test-retest reliability over 2 weeks at .95, and moderate convergent validity

with the Adult Suicidal Ideation Questionnaire ($r = .40$, $p < .40$) (Osman et al., 2001). In the

current study, the SBQ-R had a Cronbach's alpha of .840.The use of the SBQ-R to assess for the

presence of suicide ideation or suicide behaviors within a college student population has been

limited in the suicide literature (Hirsch & Barton, 2011). However, its flexibility in assessing for

past, present, and future anticipation of suicide behaviors and ideation provides a well-rounded

assessment to be used with college students in this study.

Hope.   Individual levels of hope were measured using the Adult Hope Scale (AHS;

Snyder et al., 1991). The AHS will provide a measure to assess the tangible difference between

dispositional optimism and hope, specifically an individual's agency and plans to accomplish

future tasks. When administering the AHS, this scale is known as "The Future Scale." The AHS

is a 12-item measure designed to assess two theoretical dimensions of hope: 1) agency/goal-

directed energy, and 2) pathways/plans to accomplish goals (Snyder et al., 1991).

The AHS contains 12 items in total, with four items creating an agency subscale, four

items creating a pathway subscale, and four filler items serving as distractors. Responses are

given in Likert-type format ranging from 1 (*Definitely False*) to 8 (*Definitely True*). A sample

item from the AHS is, *Even when others get discouraged, I know I can find a way to solve the*

problem. A score for agency is derived by summing items 2, 9, 10, and 12. A score for pathway

is derived by summing items 1, 4, 6, and 8. A total hope score is derived by summing both the

agency and pathway scores. The filler items of 3, 5, 7, and 11 are not included in any scoring.

Scores on the AHS are continuous, with totals of agency, pathway, and/or total hope indicative

of increased level(s) of hope, with lower scores indicative of decreased level(s) of hope. The

AHS has shown acceptable internal consistency with a Cronbach alpha range between .63 and

.84 across all subscales, and a test-retest reliability between .76 and .82 over a 10-week period

(Snyder et al., 1991). Discriminant validity was found between the AHS and the two subscales

of the Self-Consciousness Scale (r = .06 and -.03) and convergent validity toward general

positive outcome expectations was found with the Generalized Expectancy for Success Scale at

.54, $p < .05$ (Snyder et al., 1991). In the current study, the AHS had a Cronbach's alpha of .872.

The AHS was normed with six cohorts of university students and psychological treatment

samples.

Perceived Burdensomeness and Thwarted Belongingness. The Interpersonal Needs

Questionnaire (INQ) was administered to measure the variables of perceived burdensomeness

and thwarted belongingness (Van Orden et al., 2012). The INQ was developed within the theory

of the interpersonal theory of suicide, which posits that a low sense of belonging or

burdensomeness on a support system is associated with increased risk for suicide (Joiner, 2005).

The INQ is a 15-item self-report measure assessing recent experiences of both thwarted

belongingness and perceived burdensomeness. This measure utilizes a 7-point Likert-type

format ranging from 1 (*Not at all true for me*) to 7 (*Very true for me*). A score of perceived

burdensomeness is obtained by summing items 1 through 6, with high scores indicative of

increased feelings of perceived burdensomeness along a continuum. In the current study, the

INQ items that assessed for perceived burdensomeness had a Cronbach's alpha of .939. A score

of thwarted belongingness is obtained by summing items 7 through 15, with reverse scores for

noted six items, with higher scores indicating greater levels of thwarted belongingness. INQ

items that assessed for thwarted belongingness had a Cronbach's alpha of .882. A sample item

from the INQ is, *These days, I am fortunate to have many caring and supportive friends*. The

INQ has demonstrated good construct validity in association with suicide ideation in both young

and older adults on several measures, with significant scores (.366 - .824, *p* < .05) (Van Orden et

al., 2012).

      Social Desirability. The Marlowe-Crowne Social Desirability Scale (MCSDS) was

administered to assess for socially desirable response patterns from participants (Crowne &

Marlowe, 1960). The MCSDS was developed to detect dishonest responding on self-report

inventories so that those who responded in an unrealistically favorable manner can be flagged to

not skew the data as an outlier participant. Despite its development nearly 60 years ago, recent

research has found the MCSDS to outperform alternative scales aimed at identifying social

desirability responding (Lambert, Arbuckle, & Holden, 2016).

      The MCSDS is a 33-item self-report measure assessing personal attitudes and traits

toward various general situations in which social desirability may have an impact. This measure

uses a true or false response format for each item. A score of social desirability is obtained by

summing the total number of socially desirable responses. The interpretation of the MCSDS

total score is split into three categories. Scores that fall between 0–8 indicate a low socially

desirable response pattern, scores between 9–19 indicate an average degree of concern for social

desirability, and 20–33 indicate high levels of social desirability signaling the potential

avoidance of disapproval of those who may read their responses. A sample item from the

MCSDS is, *There have been times when I felt like rebelling against people in authority even*

though I knew they were right. The MCSDS has demonstrated strong internal reliability with a

coefficient alpha of 0.88 and high concurrent validity through correlations with the Minnesota

Multiphasic Personality Inventory (Crowne & Marlowe, 1960). Additionally, a 2011 study

found internal consistency Cronbach alpha levels ranging between 0.63–0.80 in several countries (Vu, Tran, Pham, & Ahmed, 2011). In the current study, the MCSDS had a Cronbach's alpha of .514.

Procedure

Prior to data collection, approval was received from the university's Internal Review Board. Following this, participants were granted access to the study's 93 items via an online survey through the secure website Qualtrics. Participants were then able to access the survey by signing up through the research participation scheduling system (SONA) accounts, where they were provided with a brief description of the study. Following this description, a link took the participant to a secure webpage with informed consent for internet research. In accordance with the American Psychological Association code of ethics (2017) as it pertains to research, informed consent thoroughly outlined the purpose, expected duration, and procedures of the study, their right to decline participation and withdraw at any time, potential risks, discomfort or adverse effects from participation, the potential benefits to the research, limits of confidentiality, incentives for participation, and contact information for questions regarding the research. The complete survey, including informed consent and debriefing statement are included in Appendix D.

After consenting to participate in the study, students began by answering demographic questions, followed by items from the SBQ-R, LOT-R, MSPSS, AHS, INQ, and MCSDS. Upon the completion of all items within the survey, participants received a message stating that they had completed the study, and again were given contact information for the lead researchers should they have had any unanswered questions or concerns about the study. In addition to this, participants received a thorough debriefing statement, along with resources available for

university and local counseling services, and immediate support resources such as the National

Suicide Prevention Lifeline (1-800-273-8255), emergency behavioral health services, and the

police department.

Analyses

Prior to data analysis taking place, participants were excluded from the data set if they

failed to complete the entire survey or if responses to validity items indicated a random response

pattern. To test the hypotheses of the study, linear regression analysis was conducted using the

variables from the study, utilizing SPSS. Within the linear regression analysis, perceived social

support was the predicted mediator, with dispositional optimism as the predictor variable and

suicide ideation as the outcome (dependent) variable. In accordance to the guidelines of the

mediation design by Baron and Kenny (1986), it is hypothesized that perceived social support

will partially mediate the relationship between dispositional optimism and suicide ideation.

Hypotheses were tested using Hayes' PROCESS model (version 3.3, model number 4) in SPSS

(AFHayes.com, Hayes, 2013). The Hayes (2013) PROCESS model (version 3.3, model number

4) has been cited as the preferred method for mediation analyses due to its ability to provide an

analytical technique that can be applied to non-normal data in the form of bootstrapped

confidence intervals.

Conclusion

The current study provides further investigation into perceived social support and

dispositional optimism and their impacts on suicide ideation. Previous literature has outlined the

benefits of these protective factors on their own, but to the investigator's knowledge, their

interaction effect on suicide ideation has not been examined. It was hypothesized that perceived

social support offers an explanation into the indirect effect within the relationship between

dispositional optimism and suicide ideation in a college student population. The results of this study offer clinical utility in suicide prevention efforts and treatment of suicide ideation for mental health professionals in the university setting, particularly by way of emphasizing a community-based approach targeting perceived interpersonal deficits in perceived social support using core principles within the field of positive psychology.

Chapter IV

Results

This chapter will provide the results from statistical analysis to test the study's mediation hypotheses. An overview of the data cleaning process and how missing data was handled will first be provided. Following this, a synopsis of the descriptive statistics of the variables will be presented. Then, results from the regression analyses and the proposed mediator variable of perceived social support will be provided alongside the tests of mediation. As a framework for this chapter, a reiteration of the study's hypotheses centered upon the proposed mediating variable of perceived social support are as follows: Perceived social support will mediate the relationship between dispositional optimism and suicide ideation, hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation.

Data Cleaning and Missing Data

Data were collected from 349 participants between August 30, 2018 and November 20, 2018. Per the guidelines of Tabachnick and Fidell (2007), analyses were conducted to assess for the accuracy of the data collected, the scale and types of missing information and responses, and an assessment of outliers and normality. Per Parent (2013), data was screened to identify any missing data entry points. Twenty-one participants with significant amounts of missing data (e.g., failure to complete entire measures) were removed prior to analysis. This resulted in a usable sample of 351 participants. Within these 351 participants, a missing data analysis was conducted. In conjunction to a visual scanning of data, Little's (1988) test of missing completely at random (MCAR) was conducted to determine potential patterns in missing data. Results indicated that missing data ranged from 0.3–2.0%, which is deemed acceptable per MCAR

guidelines. It has been suggested within the literature that 5% or less of MCAR data in a large sample (n > 100) results in less serious problems and the MCAR procedure will yield similar results to any other missing data analysis (Tabachnick & Fidell, 2007). Within this sample, missing data was recorded at less than 2% and therefore does not extend beyond item-level missingness. The method of missing data replacement that was chosen was the expectation-maximization method in SPSS for the missing data points in the SBQ-R, LOT-R, MSPSS, AHS, INQ, and MCSDS. All p-values for the expectation-maximization method for the SBQ-R, LOT-R, MSPSS, AHS, INQ, and MCSDS were not found to be significant (p < .05). Due to the categorical nature of demographic questions, missing data analysis was not conducted.

Data Normality

Following the data cleaning process and missing data replacement, data was assessed for assumptions of normality and outliers. Data was then screened for univariate outliers by converting scales to z-scores. Per Tabachnick and Fidell (2007), z-scores with an absolute value greater than 3.29 are indicative of a univariate outlier. One participant was an outlier on the AHS measure (-3.523), and this outlier was removed from the dataset. In accordance with the recommendations made by Tabachnick and Fidell (2007), an assessment of multivariate outliers was conducted by computing Mahalanobis distance scores and checking probabilities. One participant was considered a multivariate outlier (Mahalanobis D2 score $P < .001$) and was removed from the dataset. The final dataset included a sample size of 349 university student participants.

Lastly, a screening for normality in the form of skewness and kurtosis was examined to determine if there were concerns within this domain. It has been suggested by statistics researchers that values of skewness and kurtosis between -2 and +2 are considered acceptable

(Gravetter & Wallnau, 2016). When considering the polarizing nature of the variables being measured, such as suicide ideation, higher levels of skewness and kurtosis was to be expected at the onset of the study. When considering the impact of skewness and kurtosis, Tabachnick and Fidell (2007) again highlight the importance of a large sample size (n > 100) as a barrier for a substantive impact on the data analysis. With the exception of dispositional optimism and social desirability, all variables within this study displayed some level of skewness. All variables with the exception of perceived burdensomeness displayed acceptable levels of kurtosis. This data was transformed based upon its positive or negative skewness in accordance to the recommendations of Tabachnick and Fidell (2007) in order to minimize the skewness and kurtosis to the best of the data's ability. Skewness and kurtosis for all scores can be found in the Table 1. Multicollinearity was also examined by looking into the correlation matrix to determine if any variables were correlated too highly (>.90). The final sample of 349 displayed no bivariate correlations identified above $r = .7$.

Table 1.
Skewness and Kurtosis Values for All Scales Scores.

Scale	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis
SBQ-R	.467	.130	-1.020	.260
LOT-R	-.228	.130	-.089	.260
MSPSS	-.060	.130	-.908	.260
AHS	-.536	.130	.118	.260
INQ-PB	-.248	.130	-.940	.260
INQ-TB	.981	.130	-.375	.260
MCSDS	.109	.130	-.043	.260

Descriptive Statistics and Pearson Correlations

Total scores for each of the survey's variable measures were summed with respective filler items not included and reverse-coded items handled properly. Listed in Table 2 are the mean scores, standard deviations, and range of scores for all scales. The mean score for suicide ideation measured by the SBQ-R was 5.83, which indicates that the average college student within this sample was not deemed to be at risk for suicide. A total of 112 participants in the final sample fell at the equal to or greater than 7 cutoff score for risk according to the SBQ-R validation reference for the adult general population. In the current sample, the LOT-R had a mean score of 12.90 and a standard deviation of 4.41 measuring dispositional optimism, indicating that on average, participants were slightly more optimistic than pessimistic. The MSPSS had a mean score of 5.59 and a standard deviation of 1.13 measuring perceived social support, which is indicative that on average, participants perceived their overall social support as medium-high. The AHS had a mean score of 47.70 and a standard deviation of 8.50 measuring levels of hope, indicating that the average participant held an overall medium-high level of hope for the future. The INQ was split scored in order to assess the levels of perceived burdensomeness and thwarted belongingness separately. The INQ had a perceived burdensomeness mean score of 10.77 and a standard deviation of 7.18, with a thwarted belongingness mean score of 24.70 and a standard deviation of 11.64. On average, participants felt a very low sense of burdensomeness on the people in their life and moderately high levels of acceptance by others. Lastly, the MCSDS resulted in a mean score of 17.39 and a standard deviation of 5.15, indicating that participants on average responded with an average degree of concern for the social desirability with their responses.

Table 2.
Descriptive Statistics of the Variables.

Scale	Mean	Standard Deviation	Range
SBQ-R	5.83	3.20	3.0-16.0
LOT-R	12.90	4.41	0.0-24.0
MSPSS	5.59	1.13	1.0-7.0
AHS	47.70	8.50	22.0-64.0
INQ-PB	10.77	7.18	6.0-42.0
INQ-TB	24.70	11.64	9.0-62.0
MCSDS	17.39	5.15	2.0-33.0

In order to explore the linear relationships between the variables in the study, a Pearson correlational analysis was conducted. The correlation matrix (see Table 3) demonstrates results showing that all variables of this study as measured by the SBQ-R (suicide ideation), LOT-R (dispositional optimism), MSPSS (perceived social support), AHS (hope), INQ (perceived burdensomeness and thwarted belongingness), and MCSDS (social desirability) were related to one another as hypothesized. Of note for one of the study's primary hypotheses, the direction of the relationship between perceived social support and suicide ideation was inverse of what was anticipated. It can be hypothesized, though, that despite this inverse relationship, perceived social support may serve as a protective factor from suicide ideation developing into risk for suicide behavior(s).

Table 3.
Correlations.

Scale	SBQ-R	LOT-R	MSPSS	AHS	INQ_PB	INQ_TB	MCSDS
SBQ-R		-.452**	.449**	-.362**	.623**	.521**	-.320**
LOT-R	-.452**		-.418**	.598**	-.546**	-.539**	.265**
MSPSS	.449**	-.418**		-.584**	.475**	.632**	-.217**
AHS	-.362**	.598**	-.584**		-.503**	-.589**	.293**
INQ-PB	.623**	-.546**	.475**	-.503**		.616**	-.252**
INQ-TB	.521**	-.539**	.632**	-.589**	.616**		-.273**
MCSDS	-.320**	.265**	-.217**	.293**	-.252**	-.273**	

**. Correlation is significant at the 0.01 level (2-tailed).
Reference: In Table 3 above, the SBQ-R refers to the Suicide Behaviors Questionnaire-Revised, the LOT-R refers to the Life Orientation Test-Revised, the MSPSS refers to the Multidimensional Scale of Perceived Social Support, the AHS refers to the Adult Hope Scale, the INQ-PB refers to the Interpersonal Needs Questionnaire items that assess for perceived burdensomeness, the INQ-TB refers to the Interpersonal Needs Questionnaire items that assess for thwarted belongingness, and the MCSDS refers to the Marlowe-Crown Social Desirability Scale.

Correlational analyses were conducted to determine whether the dependent variable of suicide ideation may vary as a function of the demographic variables. Demographic variables examined in these analyses included participant year in college, biological sex, sexual orientation, geographic upbringing, and relationship status. Effect size between nominal and interval data was conducted using eta (η) and partial eta-squared (ηp²) statistics. Year in college

($\eta = .193$; $\eta p^2 = .037$), biological sex ($\eta = .020$; $\eta p^2 = .000$), sexual orientation ($\eta = .270$; $\eta p^2 = .073$), geographic upbringing ($\eta = .080$, $\eta p^2 = .006$), and relationship status ($\eta = .066$; $\eta p^2 = .004$) displayed little to no effect on the dependent variable of suicide ideation.

Mediation Analyses

Following the results of the significant correlational relationships found between the variables of this study, a series of mediation analyses was conducted to examine the proposed mediating effect of the variable perceived social support on the relationships between dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation. The mediation analyses in this study were based upon the model developed by Baron and Kenny (1986). This model operates under specific conditions that are required to be met in order for a mediation analysis to be conducted. First, the relationship between the X variable must predict the Y variable (path c). Second, the X variable must predict the mediating variable (path a). Third, the X variable and the mediating variable together predict the Y variable, with two conditions. The first condition states that the mediating variable predicts Y (path b). The second condition states that the X variable no longer predicts the Y variable, or its prediction of the Y variable is lessened because of the presence of the mediating variable (path c'). See Appendix A for a visual image of general mediation conditions.

To test the mediation hypotheses, Hayes (2013) PROCESS model (version 3.3, model number 4) in SPSS was utilized to test if perceived social support serves as a mediating variable to the proposed hypotheses. PROCESS is a logistic regression path analysis modeling tool that assesses for direct and indirect effects with a single mediating variable. The PROCESS approach has been cited as a modern approach to mediation analysis that allows for the incorporation of historical mediation theory (Hayes & Rockwood, 2017).

Hypotheses 1 through 4 were tested utilizing Hayes' PROCESS model (version 3.3, model number 4) in SPSS (AFHayes.com, Hayes, 2013). The predicted mediator of these hypotheses was perceived social support between the relationships of dispositional optimism and suicide ideation, hope and suicide ideation, perceived burdensomeness and suicide ideation, and thwarted belongingness and suicide ideation. The means of testing the mediation effect in Hayes' (2013) PROCESS is through the use of bootstrapped confidence intervals. Across the four hypotheses above, it was found that perceived social support served as a partial mediator to the aforementioned relationships. Results of Hayes' (2013) PROCESS test indicated the mediation model met all of the required steps to establish mediation, per Baron and Kenny (1986). A step-by-step breakdown of the mediation analyses for each hypothesis will be provided in the following paragraphs. Table 4 contains a condensed format of the results from the PROCESS analyses from the study's four hypotheses.

In hypothesis 1, the question of "does perceived social support mediate the relationship between dispositional optimism and suicide ideation in college students?" was tested. The first step of the mediation condition (path c) found dispositional optimism to be predictive of suicide ideation ($b = -.455$, $t(347) = -9.43$, $p < .001$). The second step of the mediation condition (path a) found dispositional optimism to be predictive of perceived social support ($b = -.418$, $t(347) = -8.564$, $p < .001$). Part one of the third step of the mediation condition (path b) found perceived social support to be predictive of suicide ideation ($b = .317$, $t(346) = .317$, $p < .001$) and part two (path c') to show that the presence of perceived social support partially mediated the relationship between dispositional optimism and suicide ideation ($b = -.322$, $t(346) = -6.408$, $p < .001$). In order to determine the indirect effect of perceived social support (M) on the relationship between dispositional optimism (X) and suicide ideation (Y), a bootstrap sample was conducted, resulting

in a bootstrap confidence interval lower limit of -.185 and bootstrap confidence interval upper

limit of -.090. Because these 95% confidence intervals do not include zero, the indirect effect

test is significant.

In hypothesis 2, the question of "does perceived social support mediate the relationship

between hope and suicide ideation?" was tested. The first step of the mediation condition (path

c) found hope to be predictive of suicide ideation (b = -.369, $t(347)$ = -7.241, $p < .001$). The

second step of the mediation condition (path a) found hope to be predictive of perceived social

support (b = -.5922, $t(347)$ = -13.414, $p < .001$). Part one of the third step of the mediation

condition (path b) found perceived social support to be predictive of suicide ideation (b = .362,

$t(346)$ = 6.135, $p < .001$), and part two (path c') to show that the presence of perceived social

support partially mediated the relationship between hope and suicide ideation (b = -.155, $t(346)$ =

-2.593, $p < .001$). The indirect effect of perceived social support (M) on the relationship between

hope (X) and suicide ideation (Y) was examined using a bootstrap sample. This resulted in a

bootstrap confidence interval lower limit of -.287 and a bootstrap confidence interval upper limit

of -.147. Because these 95% confidence intervals do not include zero, the indirect effect test is

significant.

In hypothesis 3, the question of "does perceived social support mediate the relationship

between perceived burdensomeness and suicide ideation?" was tested. The first step of the

mediation condition (path c) found perceived burdensomeness to be predictive of suicide

ideation (b = .624, $t(347)$ = 14.839, $p < .001$). The second step of the mediation condition (path

a) found perceived burdensomeness to be predictive of perceived social support (b = .473, $t(347)$

= 10.063, $p < .001$). Part one of the third step of the mediation condition (path b) found

perceived social support to be predictive of suicide ideation (b = .198, $t(346)$ = 4.227, $p < .001$),

and part two (path c') to show that the presence of perceived social support partially mediated the relationship between perceived social support and suicide ideation ($b = .530$, $t(346) = 11.360$, $p < .001$). The indirect effect of perceived social support (M) on the relationship between perceived burdensomeness (X) and suicide ideation (Y) was examined using a bootstrap sample. This resulted in a bootstrap confidence interval lower limit of .048 and a bootstrap confidence interval upper limit of -.143. Because these 95% confidence intervals do not include zero, the indirect effect test is significant.

In hypothesis 4, the question of "does perceived social support mediate the relationship between thwarted belongingness and suicide ideation?" was tested. The first step of the mediation condition (path c) found that thwarted belongingness was predictive of suicide ideation ($b = .521$, $t(347) = 11.374$, $p < .001$). The second step of the mediation condition (path a) found thwarted belongingness to be predictive of perceived social support ($b = .627$, $t(347) = 15.194$, $p < .001$). Part one of the third step of the mediation condition (path b) found perceived social support to be to be predictive of suicide ideation ($b = .200$, $t(346) = 3.410$, $p < .001$), and part two (path c') to show that the presence of perceived social support partially mediated the relationship between thwarted belongingness and suicide ideation ($b = .395$, $t(346) = 6.973$, $p < .001$). The indirect effect of perceived social support (M) on the relationship between thwarted belongingness (X) and suicide ideation (Y) was examined using a bootstrap sample. This resulted in a bootstrap confidence interval lower limit of .051 and a bootstrap confidence interval upper limit of .197. Because these 95% confidence intervals do not include zero, the indirect effect test is significant.

Though not initially included in the study's primary hypotheses, the partially mediating role of perceived social support between the social desirability and suicide ideation was

supported. The first step of the mediation condition (path c) found that social desirability was predictive of suicide ideation ($b = -.320$, $t(347) = -6.283$, $p < .001$). The second step of the mediation condition (path a) found social desirability to be predictive of perceived social support ($b = -.216$, $t(347) = -4.149$, $p < .001$). Part one of the third step of the mediation condition (path b) found perceived social support to be to be predictive of suicide ideation ($b = .400$, $t(346) = 8.360$, $p < .001$), and part two (path c') to show that the presence of perceived social support partially mediated the relationship between social desirability and suicide ideation ($b = -.233$, $t(346) = -4.897$, $p < .001$). The indirect effect of perceived social support (M) on the relationship between social desirability (X) and suicide ideation (Y) was examined using a bootstrap sample. This resulted in a bootstrap confidence interval lower limit of -.131 and a bootstrap confidence interval upper limit of -.042. Because these 95% confidence intervals do not include zero, the indirect effect test is significant.

Table 4.
Mediation Analyses

Hypothesis	Path a	Path b	Path c	Path c'	Indirect Effect of X on Y (ab = c-c')	Bootstrap Confidence Intervals (lower limit, upper limit)
1. Dispositional Optimism (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = -.418$ $t(347) = -8.564$ $p < .001$	$b=.317$ $t(346) = 6.297$ $p < .001$	$b = .455$, $t(347) = -9.43$ $p < .001.$	$b = .322$ $t(346) = -6.408$ $p < .001$	-.132	-.185, -.090
2. Hope (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = -.592$ $t(347) = -13.414$ $p < .001$	$b = .362$ $t(346) = 6.135$ $p < .001$	$b = .369$ $t(347) = -7.241$ $p < .001$	$b = .155$ $t(346) = -2.593$ $p < .001$	-.214	-.287, -.147
3. Perceived Burdensomeness (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = .473$ $t(347) = 10.063$ $p < .001$	$b = .198$ $t(346) = 4.227$ $p < .001$	$b = .624$ $t(347) = 14.839$ $p < .001$	$b = .530$ $t(346) = 11.360$ $p < .001$	.094	.043, .143
4. Thwarted Belongingness (X), Perceived Social Support (M), Suicide Ideation (Y)	$b = .627$ $t(347) = 15.194$ $p < .001$	$b = .200$ $t(346) = 3.410$ $p < .001$	$b = .521$ $t(347) = 11.374$ $p < .001$	$b = .395$ $t(346) = 6.973$ $p < .001$	.125	.050, .197

When considering the significant correlations between social desirability and the study's

other four variables of perceived social support, dispositional optimism, hope, perceived

burdensomeness, thwarted belongingness, and suicide ideation, mediation analyses were

conducted when controlling for social desirability within the study's four primary hypotheses.

Across the four hypotheses, social desirability was found to be insignificant in its impact on the

partially mediating effect of perceived social support on the respective relationships between

dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with

suicide ideation. In order to determine the indirect effect of perceived social support (M) on the

relationship between dispositional optimism (X) and suicide ideation (Y), when controlling for

social desirability, a bootstrap sample was conducted, resulting in a bootstrap confidence interval

lower limit (LL) of -.159 and bootstrap confidence interval upper limit (UL) of -.071. Because

these 95% confidence intervals do not include zero, the indirect effect test is significant. When

controlling for social desirability, similar results were found for the indirect effect of perceived

social support (M) on the relationship between hope (X) and suicide ideation (Y) (LL = -.274,

UL = -.1365), perceived burdensomeness (X) and suicide ideation (Y) (LL = .040, UL = .123),

and thwarted belongingness (X) and suicide ideation (Y) (UL = .039, UL = .193).

Hierarchical Regression

To identify the unique variance of the predictor variables toward suicide ideation, a series

of hierarchical regression analyses was conducted following the PROCESS mediation analyses.

These analyses were conducted based upon previously established relationships in the literature

base in addition to correlational findings within the present study.

In the first model, the variables of dispositional optimism (LOT-R), hope (AHS),

perceived burdensomeness (INQ), and thwarted belongingness (INQ) were entered with suicide

ideation (SBQ-R) as the dependent variable. In this model, these variables were found to be

statistically significant, with a R^2 change of .163, $F(4, 344) = 24.895$, $p < .001$. Therefore, these

results indicate that these three variables are predictive of suicide ideation.

The second model of hierarchical regression included perceived social support (MSPSS)

into the equation alongside the variables of dispositional optimism (LOT-R), hope (AHS),

perceived burdensomeness (INQ), and thwarted belongingness (INQ) with suicide ideation

(SBQ-R) as the dependent variable. This model reveals that perceived social support added a

slight increase in predictive capacity for suicide ideation as compared to the first model, with a

R^2 change of .014, $F(1, 343) =8.347$, $p < .01$. These results indicate that the presence of

perceived social support increases the percentage of variance accounted for by 1.4% at a

statistically significant level. Please see Appendix B for a visual image of the hierarchical

regression model and Table 5 for hierarchical regression coefficients. Interaction effects can be

found in Appendix C.

Table 5.
Hierarchical Regression Analysis Predicting Suicide Ideation (Coefficients).

Variable	*B*	*SE B*	β	t	*p*	R^2
Model 1	-	-	-	-	-	.428
LOT-R	-.132	.041	-.131	-2.377	.018	-
AHS	.071	.057	.070	1.258	.209	-
INQ-PB	.458	.055	.457	8.322	.000	-
INQ-TB	.210	.057	.210	3.662	.000	-
Model 2	-	-	-	-	-	.442
LOT-R	-.139	.055	-.138	-2.531	.012	-
AHS	.125	.059	.122	2.111	.035	-
INQ-PB	.445	.055	.445	8.147	.000	-
INQ-TB	.144	.061	.144	2.346	.020	-
MSPSS	.161	.056	.160	2.889	.004	-

In sum, results from the mediation analyses indicate that perceptions of social support

partially mediated the relationships between all predictor variables of dispositional optimism,

hope, perceived burdensomeness, and thwarted belongingness with the outcome variable of

suicide ideation in this study. Additionally, hierarchical regression analyses reveal that

perceived social support is a unique predictor of suicide ideation. These results highlight the

importance of addressing perceptions of social support with college students as a potential

intervention for reducing suicide risk.

Chapter V

Discussion

This chapter will provide an interpretive discussion of the study's results. Limitations of the study, directions for future research, along with clinical implications will be discussed in this chapter. To revisit, this study explored four hypotheses examining the proposed mediator of perceived social support between the respective relationships of dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation. Results from this study found significant correlations between all variables with perceived social support found to be a significant partial mediator within all four hypotheses of the study. Perhaps most notably, when all variables were considered for their impact on suicide ideation, perceived social support uniquely contributed to the variance of the hierarchical regression model. It appears then that perceived social support serves as an important factor in the conceptualization of protection from suicide ideation.

The hypotheses of this study stemmed from previous literature regarding the protective nature of perceived social support, hope, and the interpersonal-psychological theory of suicide (IPTS) principles characterized by the importance of social connectedness as the primary driver against suicide ideation and suicide risk (Joiner, 2005). The first hypothesis, examining the mediating role of perceived social support between dispositional optimism and suicide ideation, was partially supported. To conceptualize the partially mediating effect of perceived social support within this relationship, it can be understood that as dispositional optimism is a relatively stable personality characteristic, it is likely that those individuals are more likely to view their supports as positive (Carver and Scheier, 2014). Resulting from this, there is a strong likelihood

that because there is an expected future outcome to be positive, suicide ideation and suicide risk will occur less frequently.

Similarly, the second hypothesis found perceived social support to partially mediate the relationship between hope and suicide ideation. Because hope differs from dispositional optimism in its inclusion of personal agency to produce positive outcomes for the future, individuals with high levels of hope may experience the perception of having a more direct and active role within their social support system (Snyder et. al, 1991). The results of this study show that perceived social support helps to explain the relationship between dispositional optimism and hope with suicide ideation, respectively, with each of these predictor variables offering a unique explanation as to the theory of the significance of these relationships.

Perceived social support as a mediating variable was proposed between the IPTS variables of perceived burdensomeness and thwarted belongingness with suicide ideation as the third and fourth hypotheses, respectively. Within each of these hypotheses, perceived social support was found to be a partial mediator. In understanding these findings, it is important to factor in the social context of each of these constructs. Perceived burdensomeness is defined as a mental state of mind that is characterized as a belief that one's own existence is a burden to their supports and that the person would "be better off if I were gone" (Deci & Ryan, 2000). Conceptually, individuals may perceive themselves to be a burden on their social support but view this support as positive. Considering this dynamic, despite the burdensomeness being there, perceived social support serves as a protective factor for suicide ideation. Similarly, thwarted belongingness, defined as the unmet need of connectedness to a valued group of people, can be understood with the presence of perceived social support (Leary et al., 1995). Within this study, the feeling of low belonging or alienation alongside the perception of positive social

support was correlated with lower experiences of suicide ideation. In short, the perception of positive social support, even in the presence of perceived burdensomeness or thwarted belongingness, was found to be a significant protective factor against suicide ideation. When conceptualizing the resulting findings of partial mediation, it is important to understand that the remaining variance may be explained by a variable outside of the mediation model in this study. To potentially explain missing variance stemming from partial mediation in the present study, theoretical constructs can be utilized to understand further the role of perceived social support. From a theoretical standpoint, the Relational Regulation Theory may provide structure to the missing link. This theory posits that the link between perceived social support and improved mental health is explained by effective emotion regulation skills through these support networks (Lakey & Orehek, 2011).

Limitations and Suggestions for Future Research

Several limitations associated with the general research process and mediation analyses are worth noting. The first limitation of this study comes in the form of the self-report design of the survey, particularly due to the questioning of sensitive subjects such as suicide ideation. This was attempted to be controlled by the use of a brief, four-item measure in the form of the SBQ-R. However, the sensitive subject matter of the material of a survey may have led participants to respond in a manner that was socially desirable (Tourangeau & Yan, 2007).

Despite the study's additional variables of perceived social support, hope, perceived burdensomeness, and thwarted belongingness being less taboo in nature, there was still the perception of a social desirability effect coming into participants' pattern of responding. Outlier analyses and a social desirability measure were conducted to assess for socially desirable response patterns, though these analyses revealed minimal participants who met conditions for

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removal from analyses. Additionally, as it relates to reporting suicidality within college students and those in emerging adulthood, underreporting of suicide ideation is quite common (Goldney, Smith, & Winefield, 1991). To protect against these concerns, participants were notified of their complete anonymity prior to the survey and that their identifying information required to receive course credit would not be associated with data analyses. As such, it is important to take into consideration how underreporting suicide ideation and overreporting dispositional optimism, hope, and perceived social support may impact these results. Should it be true that participants reported disproportionately low levels of suicide ideation and high levels of dispositional optimism, hope, and perceived social support, the mediation of the direct and indirect effects of the relationships investigated in this study may be inflated. However, while a social desirability bias may have occurred to some degree within this study, it is important to note that other online survey research has found that social desirability does not negatively impact self-reporting of sensitive subject matters (Crutzen & Göritz, 2010). Regarding the MCSDS assessment of social desirability of the sample, participants averaged a mean score of 17.39, which indicates an average degree of concern for social desirability within their response pattern. When considering the large sample size of the study alongside the average degree of socially desirable responding, it can be inferred that any impact of social desirability bias within this survey is minimal.

A second limitation within this study lies within the sampling methodology. While the researcher's intent was to investigate the study's variables and their respective impact on suicide ideation within a college student population, its sample was that of convenience. Because of this, the participants' primary motivation to complete the survey was to complete a course requirement. The sample's demographic majorities of heterosexual, White/Caucasian females may limit the generalizability of the sample as compared to an accurate representation of the

nationwide college student population. Designing the demographic survey to include more specific variables with regards to race and gender identity may have presented the survey to be more inclusive in nature and therefore resulted in the opportunity for the representativeness of the sample to be further explored.

A third limitation of this study fell within the statistical analyses. The initial data analyses revealed skewness that required transformation procedures through SPSS to be corrected. It is possible that utilizing an alternative form of data handling to address skewness could have resulted in alternative interpretations of data, such as breaking the responses on various measures into quartiles (e.g., SBQ-R, LOT-R, AHS). Despite significant correlational relationships found between the variables surveyed, the results cannot be interpreted as causal in nature. Because of the skewness in this study, it is possible that a different means of handling the skewness could have led to alternative results and interpretations rather than interpretation of the variables as a whole. Because the interpretations of the results are limited to mediation models, the significant correlational relationships found between the variables surveyed, the results cannot be interpreted as causal in nature. Despite this limitation, however, these significant correlations help to better understand the root of the empirical theory of the IPTS and supportive literature of positive psychological variables within a college student population.

It is recommended that future research continue to examine the impact of perceived social support on suicide ideation within a college student population. A specific recommendation is to examine the type of perceived social support in the form of familial, social, and significant other support. When considering the transitional nature of students adjusting to the university setting within the period of development in emerging adulthood, exploring the importance of their perceptions of these specific support systems through that

period of adjustment could yield additional important information regarding perceived social support as a protective factor for suicide ideation. Continued research on understanding the experience of suicide ideation within the context of additional positive psychological variables should be a focus of future research. Variables such as gratitude, positive and negative affect, a meaningful and purposeful life, and grit offer an untapped area of exploration with regard to their association with suicide ideation. Because of the novelty of exploration of these variables, the use of qualitative research methodology may help to provide a baseline understanding or insight into their impact on suicide ideation with college students. When considering the sensitive nature of suicide, the use of qualitative data may add depth to the data collection process not found via the survey methodology used in this study.

While the impact of perceived social support was explored within the context of the IPTS, suicidology research will likely benefit from the understanding of how perceived social support may impact the respective variables of the three-step theory of suicide developed by Klonsky and May (2014). Specifically, it is worth understanding how one's perceived social support can serve as a protective factor against the dispositional, acquired, and practical capacities for suicide ideation developing into a suicide attempt. As protective factors against suicide ideation are becoming further understood in the literature base, developing knowledge of the bridge between ideation-to-action is becoming increasingly important as suicide rates among college students continue to rise in the United States.

Clinical Implications

Due to the study's primary findings that perceived social support partially mediated several relationships of constructs of dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation in a college student sample, several real-world

clinical implications can be recommended. As the suicide rate for college students in emerging

adulthood steadily rises, the intentional use of institutional resources inherently built into the

university system as high school students transition into college is critical. For example, the

implementation of targeted, preventative interventions aimed toward this population, connecting

transitioning students with supports in the form of peers, faculty and staff, and/or mentors would

allow for students to feel a positive sense of support from the very beginning of their college

experience, while allowing for the opportunity to expand their social support network in a novel

environment. Tier I levels of prevention interventions such as this can reach a diverse network

of students simultaneously enduring a shared experience.

However, these forms of prevention interventions unfortunately cannot reach all students

who may struggle with mental health concerns and potentially suicide risk. Here presents the

opportunity for university counseling centers to utilize outreach initiatives as a means toward

raising awareness of and connecting students to mental health services available to them. Upon

connecting students with these resources, clinicians can assess for traditional risk factors for

mental health concerns and depression, in conjunction with conducting brief, but thorough

interpersonal inventories to gauge a baseline level of perceived social supports in the client's life.

Following these assessments, clinicians can work alongside the client to include the development

of improved social support into the course of treatment.

By way of a holistic assessment approach from the onset of an intake interview,

clinicians can establish a positive therapeutic framework that assesses for symptomology and

risk factors (e.g., prior suicide attempt, mental health diagnosis, access to lethal means, substance

and/or alcohol use, etc.) alongside character strengths, resources, and personal values (e.g.,

perceived social support, levels of hope and optimism, sense of belonging and connection). This

assessment methodology stems from positive psychotherapy, which distances itself from the traditional deficit-oriented approach and instead communicates to help-seekers that they are not merely the product of their struggles, and instead balances positives and negatives inherent to the human experience (Rashid, 2014). In doing so, this offers clients a sense of hope going forward that they can work through some of the difficulties they face while moving toward what provides them with a sense of purpose and meaning, as opposed to simply a symptom reduction approach. Following the setting of this stage, perceived social support can be addressed via specific positive psychotherapeutic interventions. These include, but are not limited to, the recognition of signature strengths within a relational context, forgiveness of self and others, micro and macro levels of gratitude, positive communication, and giving the gift of time to others, which can be implemented to assert an emphasis on interpersonal connection and belongingness. For example, a student struggling with depression and alcohol use may present him or herself to the university counseling center feeling disconnected socially and academically. From the onset of the counseling process, a mental health clinician can assess for the risk factors this student presents with, provide psychoeducation regarding the impact of alcohol use on negating effects on the quality of perceived social support and academic functioning, and develop effective means of coping utilizing character strengths this student holds, but is not presently implementing into their life.

Presently, university counseling centers in the United States often play a role in the transition for students in their adjustment to college through outreach programming or tabling events at new student orientations. Typically, this comes in the form of tangible information provided on websites or brief workshops that often focus on relatively common difficulties students may face during this process. These may include the potential for academic difficulties

(e.g., increased demands, novel requirements, time management, etc.), the importance of establishing new friendships and connections on campus, and fiscal responsibility. While these aspects of the transition process are important subjects to be discussed, an important oversight appears to come in the form of how the experience of uprooting from preexisting support systems to a novel environment without those supports immediately present impacts the student who may need them. These sudden changes or shifts in their social support dynamics may in turn alter their perceptions of social support in a negative manner. It is recommended that university counseling centers strive to incorporate the evolving nature of incoming college students' social support systems. Specifically, it may be beneficial to address the reality of loss that comes from this process, understanding that feelings of homesickness may in actuality be feelings of grief tied to the perceived loss of their support system. Addressing that dynamic, in conjunction within the development of new relationships, such as those of peer-mentoring relationships or group therapy, can facilitate a sense of hope for these students, with the potential to facilitate a sense of belongingness and connection to their new home.

It is recommended that perceived social support be addressed during transitional periods of adjustment for university students. Importantly, the timing of these interventions should be in accordance to when risk is highest for students. The summertime in particular has been shown to be associated with significantly increased rates of suicide and decreased rates of social connectedness (Van Orden et al., 2008). Addressing the transition of arriving to college for the first time should be done during these summer months as means of developing a sense of hope for improved connection and the potential to develop and evolve students' support systems. Within this approach, the proactive use of a community-based prevention framework of prevention should be utilized to reduce vulnerabilities and enhance personal assets in order to

reduce the risk of suicide by way of increasing perceptions of social support (Drum & Denmark, 2012). Within this community-based prevention framework, and assuming these relationships are healthy in nature, it is recommended that parents or guardians in the student's life be incorporated, if at all possible. Because of privacy laws that protect student confidentiality, parental figures are often unaware of their child's well-being, be it academic or psychological. However, if parental figures can be involved as active participants throughout this transitional process, there will be a mutual understanding of respective interpersonal needs, expectations, and means for support on and off campus for when challenges are faced from the very beginning to continue their support as the parent-child support system evolves during this major transition.

Additional emphasis for prevention efforts should be placed on student populations that may be at increased risk for suicide and other mental health concerns. These populations may not inherently have certain levels of privilege or resources afforded to them that may assist other students during the adjustment process. Certain college student populations that may uniquely struggle with the adjustment process to college and in their perception of social support through this transition include those who identify as LGBTQ, students of color, international students, graduate students, and nontraditional/adult students. If possible, the previous recommendations of early and holistic intervention should be applied to these populations as appropriate. Additional emphasis should be placed upon the creation of a welcoming environment for all students at the university beginning at and continuing on from the orientation process forward. Population-specific resources (e.g., LGBT organizations, multicultural/international development programming, veteran assistance, etc.) that highlight the strengths held within these identities should be made readily available for these students and the development of mentorship programs could facilitate an immediate sense of connection and belonging throughout this transition

process. There is a need to provide resources to these student populations, outside the realm of traditional therapeutic services, such as the use of crisis text line services or peer-mentor relationship or group therapy facilitated by university counseling center professionals.

Lastly, this study's findings yield important implications for the current state of affairs for universities, including employees not traditionally associated with providing mental health services. As the demand for mental health services continues to rise in university counseling centers, it is imperative that faculty and staff develop an understanding that they hold power to help create an environment that is welcoming to provide their students with a place they perceive to be safe and supportive. As an added layer of protection for suicide risk of students in the university environment, specific suicide prevention trainings for non-mental health professionals, akin to the Question, Persuade, and Refer training, can increase comfort with openly discussing suicide and mental health concerns, and allow for them to direct students in distress to the proper locations (Aldrich, Wilde, & Miller, 2018). The landscape of higher education places so much of its value upon the proper delivery of academic knowledge to its students, while often neglecting the basic need of belonging for students in the classroom. It is the hope of this author that those in positions of power can work toward creating an environment that values a balance between academic growth and authentic care for the students seated in front of them.

Conclusion

The current study adds to the suicidology and positive psychological literature by obtaining additional understanding as to the importance of perceived social support for college students and suicide ideation. Results of the study indicate that perceived social support operated as a partial mediator between the relationships of dispositional optimism, hope, perceived burdensomeness, and thwarted belongingness with suicide ideation. This finding

serves as a strong indicator that suicide ideation and risk can be reduced if this perception is met within an individual's life. This highlights an important need in the assessment of suicide in university counseling centers. As traditional risk factors for suicide need to be continuously assessed for, it is recommended that clinicians also intentionally assess for perceptions of social support to determine if this aspect of client well-being can be improved upon within the therapeutic context as a means of prevention.

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Appendix A

General Mediation Model

a = Effect of dispositional optimism on perceived social support.

b = Effect on perceived social support on suicide ideation.

c = Total effect of dispositional optimism on suicide ideation without a mediating variable.

c' = Total effect of dispositional optimism on suicide ideation with a mediating variable.
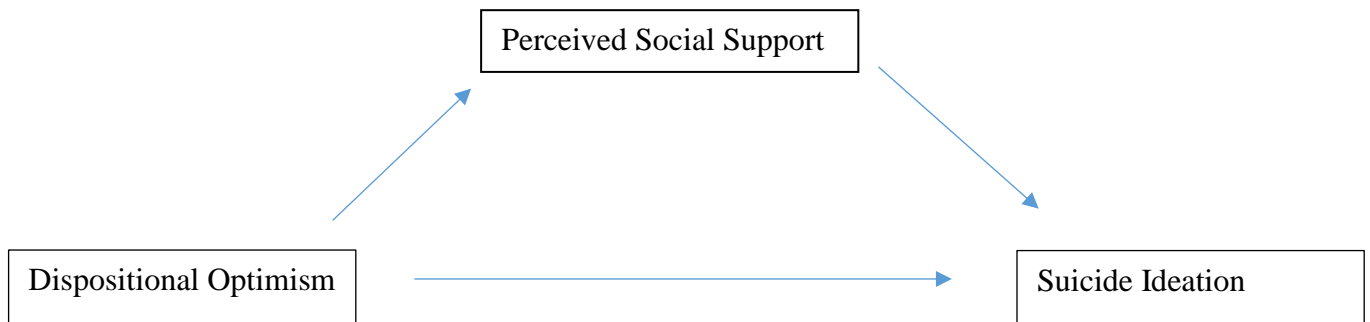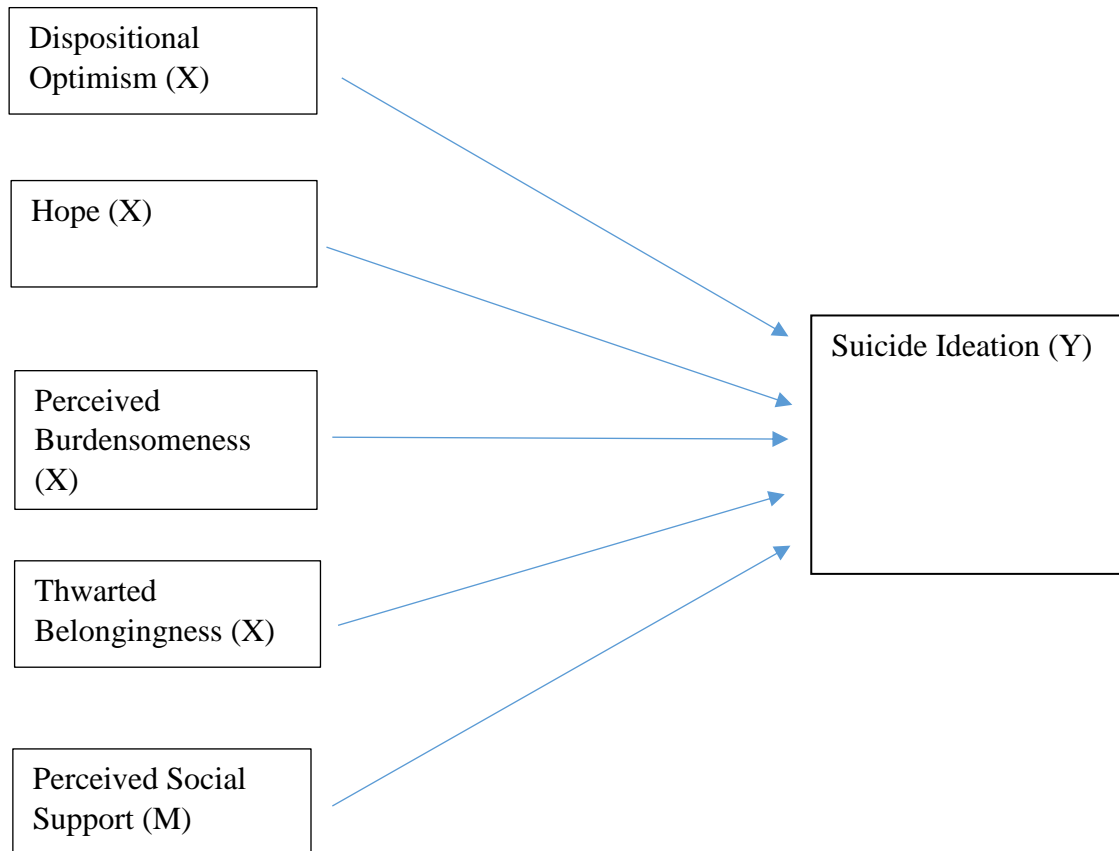
Appendix B

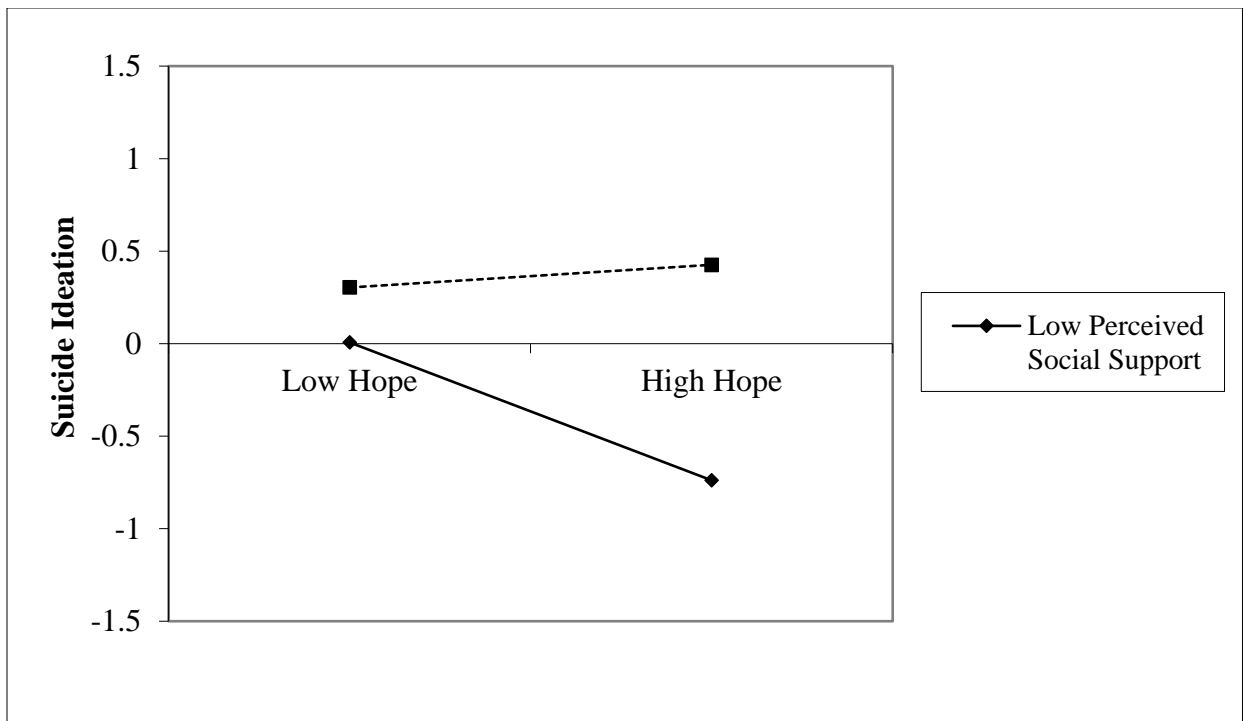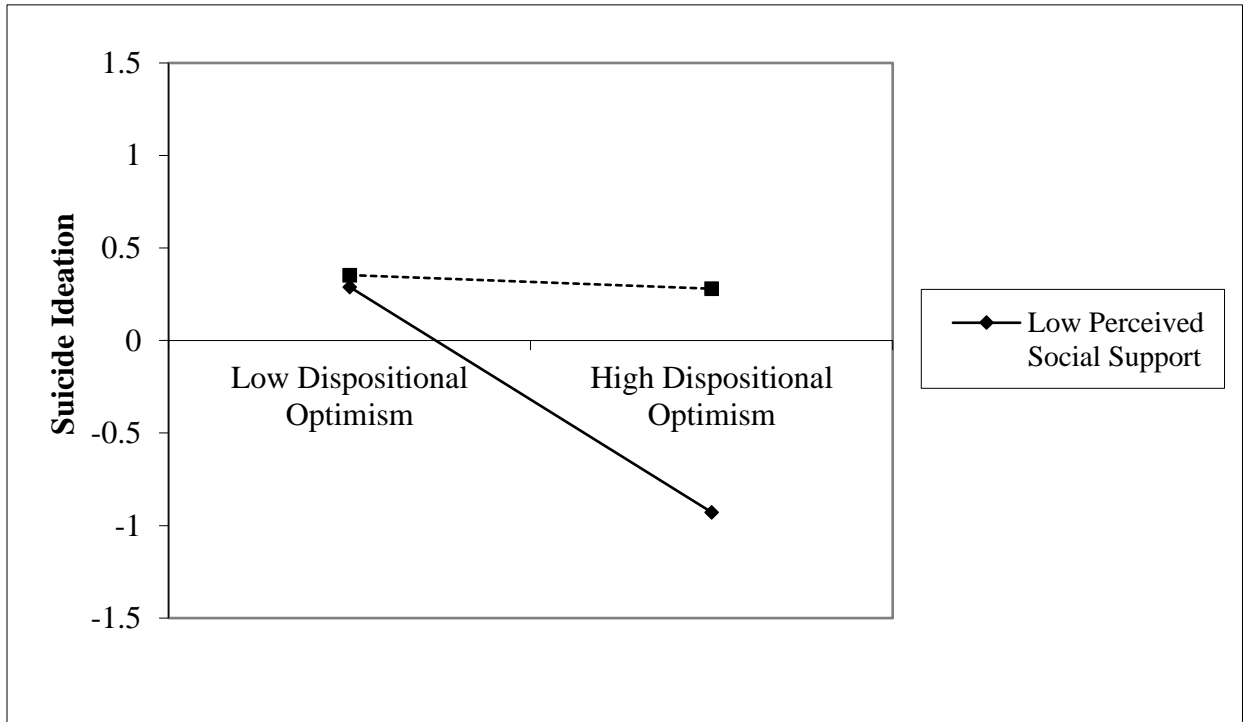**Hierarchical Multiple Regression Model**

X = Predictor variables.

M = Predictor variable and proposed mediator of the study.
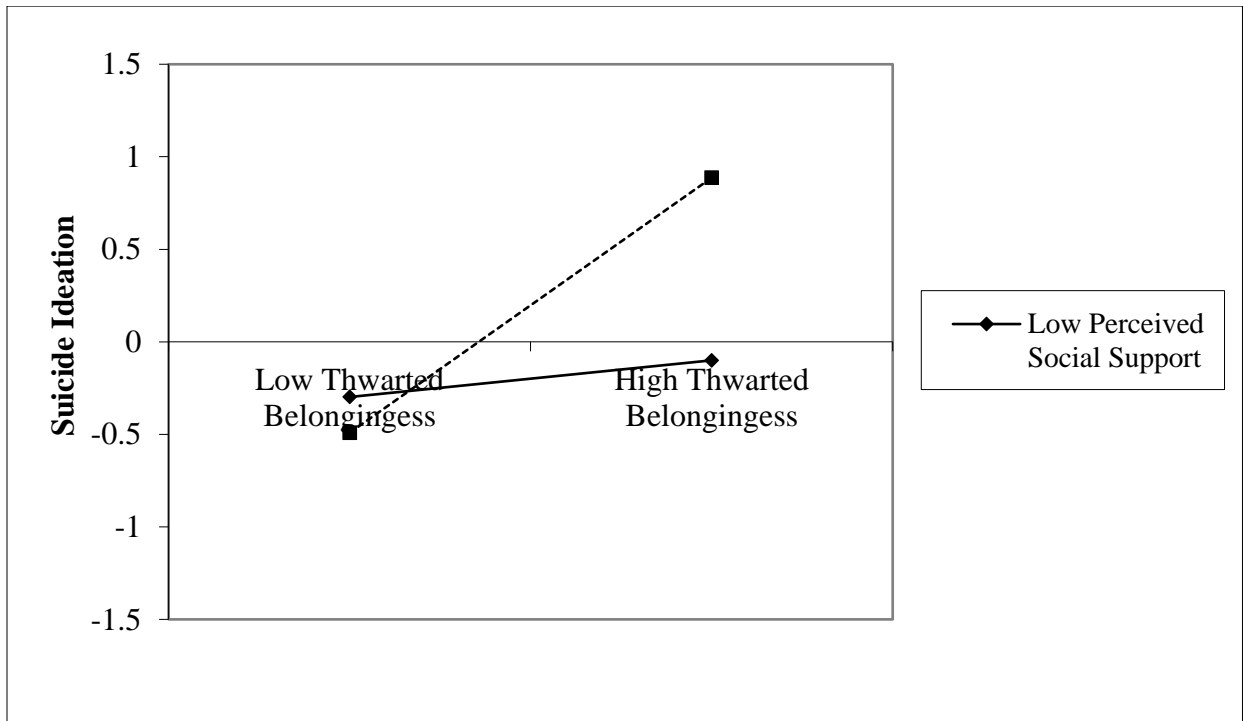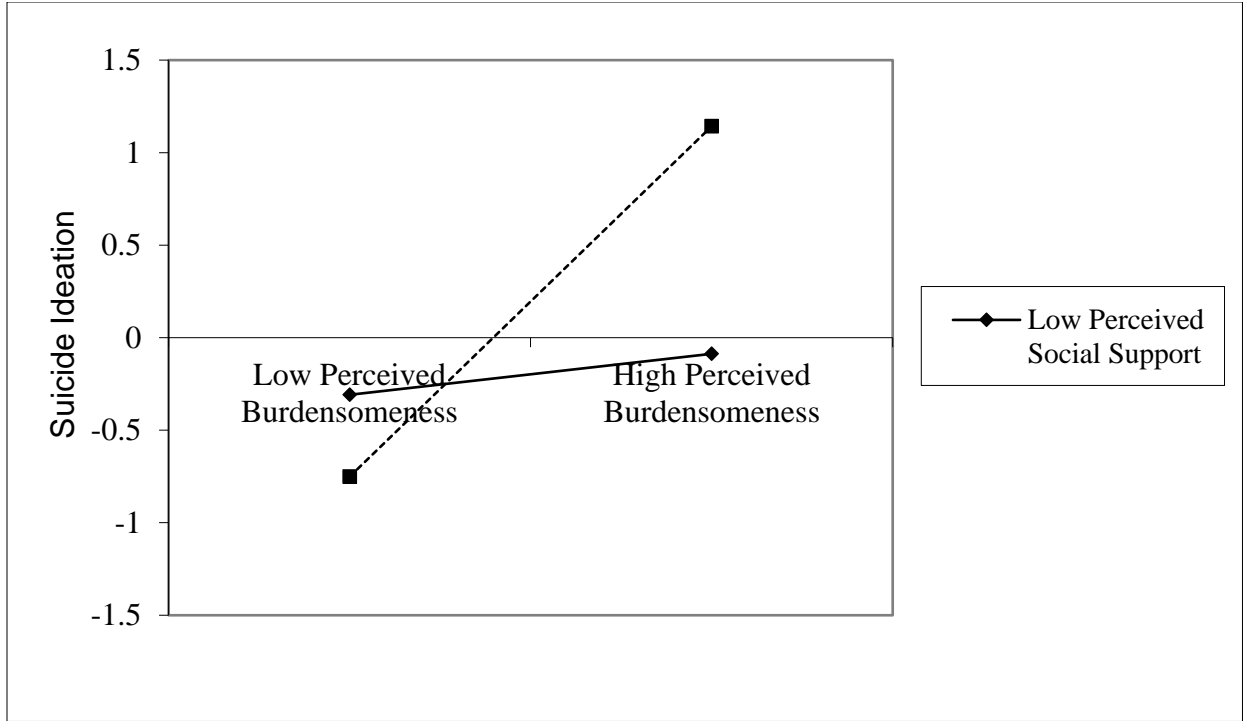
Y = Outcome variable.

Appendix C

Interaction Effects

Appendix D

College of Humanities and Behavioral Science – Department of Psychology

You are invited to participate in a research survey entitled **Protective Factors for Suicide Ideation.** The study is being conducted by Ian K. Evans, M.S. and Nicholas Lee, Ph.D. of the Radford University Psychology Department, 5108 College of Humanities and Behavioral Sciences Building, P.O. Box 6946, Radford, VA, 24142.

The current study attempts to examine the role of perceived social support, dispositional optimism, and hope as it relates to thoughts of suicide and thwarted belongingness/perceived burdensomeness. We estimate that the survey will take approximately 15-30 minutes to complete. The investigators can be reached with any questions you may have regarding the survey at the contact information listed in this document.

The risks associated for human subjects in participating in this study is related to exposure to questions inquiring about suicide. Participants may feel uncomfortable due to the nature of some of the questions being asked. Participants will encounter questions related to a history of thoughts and actions of suicide which may bring about feelings of discomfort. The names of participants will not be associated with data in any capacity, and IP addresses collected by Qualtrics will not be exported as part of the data so that no connection can be made from participants to responses.

Following completion of the survey, participants will be provided with Radford University and community resources, should they feel a need to discuss these feelings following the survey. Counseling services are available through Radford University Student Counseling Services. Please call (540) 831-5226 if you would like to schedule an appointment with a counselor. If you are in immediate distress, call 9-1-1 for emergency services.

It is important to note that participation in this survey is entirely voluntary. You may decline to answer any question and have the right to withdraw from participation at any time without penalty. If you withdraw from the study or have any questions, please contact the research investigators.

If you have questions, you may contact Nicholas Lee via email at nlee11@radford.edu or by telephone at 540-831-5361. You may also request a hard copy of the survey from the contact information listed above.

This study was approved by the Radford University Committee for the Review of Human Subjects Research. Should you have questions or concerns regarding your rights as a research participant or have complaints or dissatisfaction toward this study, you may contact Dr. Laura J. Jacobsen, Interim Dean, College of Graduate Studies and Research, Radford University, ljacobsen@radford.edu, 540-831-5470.

If you agree to participate, please **click the red arrow on the lower right corner of this page**. If you do not wish to participate, click the "X" in the upper right corner to close this window and disconnect from the survey.

Thank you.

Q1 What is your age?

Q2 What year are you in college?

- o First Year
- o Second Year
- o Third Year
- o Fourth Year
- o Fifth Year
- o Graduate Student
- o Other

Q3 What is your biological sex?

- o Male
- o Female
- o Other

Q4 With which sexual orientation do you identify?

- o Heterosexual
- o Homosexual
- o Bisexual
- o Questioning
- o Asexual
- o Other

Q5 What is your race? CHECK ALL THAT APPLY

- o White
- o Black or African American
- o American Indiana or Alaska Native
- o Asian Indian
- o Chinese
- o Filipino
- o Japanese
- o Korean
- o Vietnamese
- o Other Asian
- o Native Hawaiian
- o Guamanian or Chamorro
- o Samoan
- o Other Pacific Islander

Q6 Are you of Hispanic, Latino, or Spanish Origin?

- o No, not of Hispanic, Latino, or Spanish origin
- o Yes, Mexican, Mexican-American, Chicano
- o Yes, Puerto Rican
- o Yes, Cuban
- o Yes, other Hispanic, Latino, or Spanish origin

Q7 How would you describe the area in which you grew up in (or spent most of your time)?

- o Rural (50,000 people or less)
- o Urban (50,000 to 100,000 people)
- o Metropolitan (100,000 people or more)

Q8 What is your relationship status?

- o Single
- o In a relationship
- o Engage
- o Married
- o Divorced
- o Widowed
- o Other

SOCIAL SUPPORT, OPTIMISM, AND SUICIDE IDEATION

Instructions: Please check the number beside the statement or phrase that best applies to you.

Q9 Have you ever thought about or attempted to kill yourself? (check one only)

- o Never
- o It was just a brief passing thought
- o I have had a plan at least once to kill myself and really wanted to die
- o I have attempted to kill myself, but did not want to die
- o I have attempted to kill myself, and really hoped to die

Q10 How often have you thought about killing yourself in the past year? (check one only)

- o Never
- o Rarely (1 time)
- o Sometimes (2 times)
- o Often (3-4 times)
- o Very Often (5 or more times)

Q11 Have you ever told someone that you were going to commit suicide, or that you might do it? (check one only)

- o No
- o Yes, at one time, but did not really want to die
- o Yes, at one time, and really wanted to die
- o Yes, more than once, but did not want to do it
- o Yes, more than once, and really wanted to do it

Q12 How likely is it that you will attempt suicide someday? (check one only)

- o Never
- o No chance at all
- o Rather unlikely
- o Unlikely
- o Likely
- o Rather likely
- o Very unlikely

Instructions: Please answer the following questions about yourself by indicating the extent of your agreement using the following scale:

Q13 1. In uncertain times, I usually expect the best.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q14 2. It's easy for me to relax.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q15 3. If something can go wrong for me, it will.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q16 4. I'm always optimistic about my future.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q17 5. I enjoy my friends a lot.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q18 6. It's important for me to keep busy.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q19 7. I hardly ever expect things to go my way.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q20 8. I don't get upset too easily.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q21 9. I rarely count on good things happening to me.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Q22 10. I expect more good things to happen to me than bad.

- o (0) Strongly Disagree
- o (1) Disagree
- o (2) Neutral
- o (3) Agree
- o (4) Strongly Agree

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Q23 1. There is a special person who is around when I am in need.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q24 2. There is a special person with whom I can share my joys and sorrows.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q25 3. My family really tries to help me.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q26 4. I get the emotional help and support I need from my family.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q27 5. I have a special person who is a real source of comfort to me.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q28 6. My friends really try to help me.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q29 7. I can count on my friends when things go wrong.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q30 8. I can talk about my problems with my family.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q31 9. I have friends with whom I can share my joys and sorrows.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q32 10. There is a special person in my life who cares about my feelings.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q33 11. My family is willing to help me make decisions.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Q34 12. I can talk about my problems with my friends.

- o (1) Very Strongly Disagree
- o (2) Strongly Disagree
- o (3) Mildly Disagree
- o (4) Neutral
- o (5) Mildly Agree
- o (6) Strongly Agree
- o (7) Very Strongly Agree

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and click that number.

Q35 1. I can think of many ways to get out of a jam.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q36 2. I energetically pursue my goals.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q37 3. I feel tired most of the time.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q38 4. There are lots of ways around any problem.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q39 5. I am easily downed in an argument.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q40 6. I can think of many ways to get the things in life that are important to me.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q41 7. I worry a lot about my health.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q42 8. Even when others get discouraged, I know I can find a way to solve the problem

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q43 9. My past experiences have prepared me well for my future.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q44 10. I've been pretty successful in life.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q45 11. I usually Find myself worrying about something.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

Q46 12. I meet the goals I have for myself.

- o (1) Definitely False
- o (2) Mostly False
- o (3) Somewhat False
- o (4) Slightly False
- o (5) Slightly True
- o (6) Somewhat True
- o (7) Mostly True
- o (8) Definitely True

The following questions ask you to think about yourself and other people. Please respond to each question by using your currently beliefs and experiences, NOT what you think is true in general, or what might be true for other people. Please base your responses on how you've been feeling recently. Use the rating scale to find the number that best matches how you feel and click that number. There are no right or wrong answers: we are interested in what you think and feel.

Q47 1. These days, the people in my life would be better off if I were gone.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q48 2. These days, the people in my life would be happier without me.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q49 3. These days, I think I am a burden on society.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q50 4. These days, I think my death would be a relief to the people in my life.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q51 5. These days, I think the people in my life wish they could be rid of me.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q52 6. These days, I think I make things worse for the people in my life.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q53 7. These days, other people care about me.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q54 8. These days, I feel like I belong.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q55 9. These days, I rarely interact with people who care about me.

- o   (1) Not at all true for me
- o   (2)
- o   (3)
- o   (4) Somewhat true for me
- o   (5)
- o   (6)
- o   (7) Very true for me

Q56 10. These days, I am fortunate to have so many caring and supportive friends.

- o   (1) Not at all true for me
- o   (2)
- o   (3)
- o   (4) Somewhat true for me
- o   (5)
- o   (6)
- o   (7) Very true for me

Q57 11. These days, I feel disconnected from other people.

- o   (1) Not at all true for me
- o   (2)
- o   (3)
- o   (4) Somewhat true for me
- o   (5)
- o   (6)
- o   (7) Very true for me

Q58 12. These days, I often feel like an outsider at social gatherings.

- o   (1) Not at all true for me
- o   (2)
- o   (3)
- o   (4) Somewhat true for me
- o   (5)
- o   (6)
- o   (7) Very true for me

Q59 13. These days, I feel that there are people I can turn to in time of need.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q60 14. These days, I am close to other people.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Q61 15. These days, I have at least one satisfying interaction every day.

- o (1) Not at all true for me
- o (2)
- o (3)
- o (4) Somewhat true for me
- o (5)
- o (6)
- o (7) Very true for me

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is *true* or *false* as it pertains to you personally.

Q62 1. Before voting I thoroughly investigate the qualifications of all the candidates.

- o True
- o False

Q63 2. I never hesitate to go out of my way to help someone in trouble.

- o True
- o False

Q64 3. It is sometimes hard for me to go on with my work if I am not encouraged.

- o True
- o False

Q65 4. I have never intensely disliked someone.

- o True
- o False

Q66 5. On occasion I have had doubts about my ability to succeed in life.

- o True
- o False

Q67 6. I sometimes feel resentful when I don't get my way.

- o True
- o False

Q68 7. I am always careful about my manner of dress.

- o True
- o False

Q69 8. My table manners at home are as good as when I eat out in a restaurant.

- o True
- o False

Q70 9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

- o True
- o False

Q71 10. On a few occasions, I have given up doing something because I thought too little of my ability.

- o True
- o False

Q72 11. I like to gossip at times.

- o True
- o False

Q73 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

- o True
- o False

Q74 13. No matter who I'm doing to, I'm always a good listener.

- o True
- o False

Q75 14. I can remember "playing sick" to get out of something.

- o True
- o False

Q76 15. There have been occasions when I took advantage of someone.

- o True
- o False

Q77 16. I'm always willing to admit when I made a mistake.

- o True
- o False

Q78 17. I always try to practice what I preach.

- o True
- o False

Q79 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

- o True
- o False

Q80 19. I sometimes try to get even rather than forgive and forget.

- o True
- o False

Q81 20. When I don't know something I don't at all mind admitting it.

- o True
- o False

Q82 21. I am always courteous, even to people who are disagreeable.

- o True
- o False

Q83 22. At times I have really insisted on having things my own away.

- o True
- o False

Q84 23. There have been occasions when I felt like smashing things.

- o True
- o False

Q85 24. I would never think of letting someone else be punished for my wrongdoings.

- o True
- o False

Q86 25. I never resent being asked to return a favor.

- o True
- o False

Q87 26. I have never been irked when people expressed ideas very different from my own.

- o True
- o False

Q88 27. I never make a long trip without checking the safety of my car.

- o True
- o False

Q89 28. There have been times when I was quite jealous of the good fortune of others.

- o True
- o False

Q90 29. I have almost never felt the urge to tell someone off.

- o True
- o False

Q91 30. I am sometimes irritated by people who ask favors of me.

- o True
- o False

Q92 31. I have never felt that I was punished without cause.

- o True
- o False

Q93 32. I sometimes think when people have a misfortune they only got what they deserved.

- o True
- o False

Q94 33. I have never deliberately said something that hurt someone's feelings.

- o True
- o False

Your answers have been recorded. Thank you for your participation.

You will receive one (10) SONA credit within 48-72 hours. If you have questions or concerns, please contact Nicholas Lee, Ph.D., at nlee11@radford.edu.

Counseling services are available through Radford University Student Counseling Services. Please call 540-831-5226 if you would like to schedule an appointment with a counselor. More information can be found at their website: https://www.radford.edu/content/student-counseling/home.html. If you are in immediate distress, call 9-1-1 for emergency services.

If desired, you may print this page for your records.

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