Predictors of suicide ideation and the moderating effects of suicide attitudes

Kristine Lynne Brown

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A Thesis
entitled
Predictors of Suicide Ideation and the Moderating Effects of Suicide Attitudes
by
Kristine Brown
Submitted to the Graduate Faculty as partial fulfillment of the requirements for the
Master of Arts Degree in Clinical Psychology

Dr. Joseph Hovey, Committee Chair
Dr. Wesley Bullock, Committee Member
Dr. Kamala London, Committee Member

Dr. Patricia Komuniecki, Dean
College of Graduate Studies

The University of Toledo
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An Abstract of
Predictors of Suicide Ideation and Suicide Attitudes as a Moderator

by

Kristine L. Brown

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Master of Arts Degree in Clinical Psychology

The University of Toledo
May 2011

Research has shown that there are various predictors of suicide ideation. Moreover, people’s attitudes toward suicide are also associated with suicide ideation, and suicide attitudes have been associated with predictors of suicide ideation. This research examines four different variables as predictors of suicide ideation in a college sample: depression, hopelessness, perceived stress, and religiosity. Young adult suicide attitudes were also investigated to determine the extent to which they moderate the relationships between the aforementioned predictors and suicide ideation. Correlational analyses and stepwise, hierarchical multiple regressions revealed that depression, hopelessness, and perceived stress are significant predictors of suicide ideation, but only the relationship between perceived stress and suicide ideation was moderated by suicide attitudes. These results have important implications for the prevention of suicide, suggesting that suicide prevention programs, counseling centers, and psychology clinics on college campuses should include suicide attitudes as well as depression, hopelessness, and perceived stress in their assessment and identification of individuals who may be at risk for engaging in suicide ideation.
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Chapter One

Introduction

Suicide and Its Process

One of the leading causes of death around the world is suicide. Specifically, suicide is the third leading cause of death among young adults 15 to 24 years old in the United States (Anderson & Smith, 2005; Control, 2009) and the second leading cause of death among college students (Dogra, Basu, & Das, 2008; Schwartz, 2006). According to the Center for Disease Control (2009), there are approximately 100-200 suicide attempts for every completed suicide among young adults age 15 to 24 years, and suicide accounts for 12% of all deaths annually for the same age group. Westefeld et al. (2005) have found that 24% of a sample of 1,865 college students has thought about attempting suicide. Thus, suicide among the young adult, college population is an issue of great importance, and there is a need to investigate the factors associated with suicidal ideation in young adults. It is important for practitioners and clinicians in both the mental and physical health professions to identify both the risk and protective factors that may be predictive of suicide ideation in young adults with regard to protecting their clients.

First, it is important to have a clear understanding of the terminology related to suicide. Suicide is a self-inflicted death, where a person engages in an intentional, direct and conscious effort to end his or her life; O’Carroll et al. (1996) define suicide as self-inflicted death from injury, poisoning, or suffocation, where the deceased committed the act with the intention to kill himself or herself. Suicide involves any behavior that is self-initiated and carried out with the intention or expectation to die and includes self-inflicted, active or passive acts (De Leo, Burgis, Bertolote, Kerkof, & Bille-Brahe, 2004).
Suicide ideation involves thoughts related to a desire, intent, and method for committing suicide. According to O’Carroll et al. (1996), suicide ideation refers to self-reported thoughts of carrying out suicide-related behavior. Suicide ideation includes thoughts and cognitions about suicidal behaviors. Finally, a suicide attempt is a self-inflicted, self-injurious act committed with some intent to die (O’Carroll et al., 1996).

It is important to note that thoughts of committing suicide are often fleeting and characteristic of times during which a person experiences distress, and with increased periods of distress, suicide ideation can increase in frequency and expand to become more elaborative, including not only thoughts of wanting to die or to kill oneself but also thoughts of what it would be like to kill oneself and how one would commit suicide (Paladino & Barrio Minton, 2008). Suicide ideation is a critical part of the suicide process; it precedes suicide attempts and completed suicides (Harris & Barraclough, 1997). The suicide process involves suicide ideation, a suicide plan, a suicide attempt, and completed suicide (See Figure 1) (Vilhjalmsson, Kristjansdottir, & Sveinbjarnardottir, 1998). It is essential to identify early steps in the suicide process, such as suicide ideation, because then, efforts can be made to stop the progression of the suicide process before a suicide plan or attempt is made (Arria et al., 2009; Harris & Barraclough, 1997). Thus, suicide ideation plays an important role in detecting and preventing suicide behavior (Palmer, 2004).
Figure 1. Diagram of the suicide process. This figure illustrates the steps in the suicide process.

Predictors of Suicide Ideation

A great deal of research has focused on determining significant risk and protective factors that predict suicide ideation. However, the suicide process, especially suicide ideation, is complex (Wu & Bond, 2006). A majority of college students who experience suicide ideation do so as the result of a combination of risk factors and precipitating life events (Gould & Kramer, 2001). There are numerous risk and protective factors believed to be associated with suicide ideation, attempts, and completion: depression, ethnicity, family socioeconomic status, prior suicidal behavior, anxiety, hopelessness, substance use, family and relationships issues, aggressive/impulsive behaviors, physical and sexual abuse, stressful life events, impaired coping abilities, exposure to suicide, low self-esteem, homosexual or bisexual orientation, poor communication with family members, family discord, financial problems, personality, aggression, poor academic achievement and performance, and poor peer relationships (Brener, Hassan, & Barrios, 1999; Cukrowicz, Wingate, Driscoll, & Joiner, 2004; De Man, Labreche, & Leduc, 1993; Dogra et al., 2008; Evans, Hawton, & Rodham, 2004; Fergusson & Lynskey, 1995; Furr, Westefeld, McConnell, & Jenkins, 2001; Gutierrez, Osman, Kopper, Barrios, & Bagge, 2000; Hintikka et al., 2009; Konick & Gutierrez, 2005; Meilman, Patis, & Krause-Zeilman, 1994; Rey et al., 1998; Roberts, Roberts, & Chen, 1998; Smith, Alloy, &
Abramson, 2006; Spirito & Esposito-Smythers, 2005; Stephenson, Pena-Shaff, & Quirk, 2006; Wilburn & Smith, 2005). Knowing that these predictive factors are associated with suicide ideation allows clinicians in both mental and physical health settings to identify people who are at a greater risk for suicide ideation, and thus, efforts can be made to prevent the suicide process from beginning or progressing beyond suicide ideation.

One strong predictor of suicide ideation in young adults is depression. Depression in young adults is frequently reported by those who have engaged in suicide attempts (Bae, Ye, Chen, Rivers, & Singh, 2005; Evans et al., 2004; Garlow et al., 2008; Konick & Gutierrez, 2005; Spirito & Smythers, 2005; Westefeld et al., 2006). In addition, research has found that affective disorders, specifically a depressive episode, are common psychiatric diagnoses among people who have completed the act of suicide (Houston, Hawton, & Shepperd, 2001). Kisch, Leino, and Silverman (2005) have found that a depressed mood is a risk factor for suicidal behavior in college students. In addition, various studies have reported a significant relationship between depression and suicide ideation among college students, where high levels of depression are associated with high levels of suicide ideation (Weber, Metha, & Nelsen, 1997; Garlow et al., 2008; Singh & Joshi, 2008). Furthermore, numerous studies have conducted multiple regression analysis that revealed depression is a strong predictor of suicide ideation among college students (Gibb, Andover, & Beach, 2006; Singh & Joshi, 2008; Stephenson et al., 2006). It is evident that past research has shown high levels of depression to be associated with increased suicide ideation, suggesting that depression is a significant predictor of suicide ideation (Furr et al., 2001; Gibb et al., 2006; Hirsch, Conner, & Duberstein, 2007; Kumar & Pradhan, 2003; Lipschitz, 1995; Singh & Joshi,
2008; Stephenson et al., 2006; Thompson, Moody, & Eggert, 1994). Thus, depression is a risk factor predictive of suicide ideation.

Hopelessness is another risk factor that predicts suicide ideation in young adults. Hopelessness is the experience of despair or extreme pessimism about the future (Beck, 1979). According to Schneidman (1996), hopelessness-helplessness is the most common emotion experienced among suicidal people. Numerous studies have found a link between feelings of hopelessness and suicide ideation, attempts, and completions (Abramson et al., 1998; Beck, Steer, & Brown, 1993; Chioqueta & Stiles, 2005; Evans et al., 2004; Konick & Gutierrez, 2005; Pinto & Whisman, 1996; Kuo, Gallo, & Eaton, 2004; Simons & Murphy, 1985; Smith et al., 2006; Spirito & Esposito-Smythers, 2005). Hirsch et al. (2007) and Weber et al. (1997) have shown that there is a significant association between hopelessness and suicide ideation among college students, where high levels of hopelessness are linked to high levels of suicide ideation. For years, research has supported the notion that hopelessness is a significant predictor of suicide ideation among college students (Beck, Steer, Kovacs, & Garrison, 1985; Dixon, Heppner, & Rudd, 1994; Gibb et al., 2006; Heisel, Flett, & Hewitt, 2003; Lipschitz, 1995; Stephenson et al., 2006). Clearly, hopelessness is also a risk factor predictive of suicidal ideation.

In addition, perceived stress is a risk factor for young adult suicide ideation, particularly for the college population, because college students are believed to have high levels of perceived life stress (Hirsch & Ellis, 1996). A relationship has been established between stress and suicide ideation. Joiner and Rudd (1995), Lipschitz (1995), and Chang (2002) present findings that suggest life stress is associated with suicide ideation.
Specifically, Hirsch and Ellis (1996) have found that college students who experience suicide ideation have greater levels of life stress. In addition, Weber et al. (1997) and Singh and Joshi (2008) have shown significant associations between stress and suicide ideation among college students, indicating that people with a high level of life stress may have a greater tendency to experience suicide ideation. Moreover, Singh and Joshi (2008) have revealed that stress is a strong predictor of suicide ideation among college students, using multiple regression analyses. Thus, it is reasonable to maintain that stress, measured in terms of a person’s perceived stress, would predict suicide ideation.

One study in particular conducted by Vilhjalmsson et al. (1998) specifically examines the relationships between life stress and perceived stress and suicide ideation. These researchers have found that life stress and stress perceptions are significantly associated with thoughts of suicide; their research suggests that perceived stress is a risk factor for suicide ideation (Vilhjalmsson et al., 1998). Therefore, it seems that an individual’s perceived level of stress is a predictor of suicide ideation.

Lastly, religiosity is a predictor of suicide ideation often acting as a protective factor against it. Research related to the protective effects of religion against suicide ideation is extensive. In general, research supports that suicide risk is lower in people who are religious compared to those who are nonreligious (Maris, 1982; Sorri, Henriksson, & Lonnqvist, 1996). Various studies have shown that people who report being more religious also report lower levels of suicide ideation, and people who report being less religious also report greater suicide ideation (Bagley & Ramsay, 1989; Simonson, 2008; Walker & Bishop, 2005; Zhang & Jin, 1996). Different aspects of religion are thought to protect against suicide ideation: the integrative benefits of religion,
such as social support; the culture of hope represented by religion; and/or the moral
constraints of religious beliefs that coincide with religious affiliation and practicing
religion, given that many religions maintain beliefs prohibiting suicidal behavior (Dervic
et al., 2004; Koenig, McCullough, & Larson, 2001; Neeleman, Halpern, Leon, & Lewis,
1997; Neeleman, Wessely, & Lewis, 1998; Pescosolido & Georgianna, 1989; Stack,
1983; Stack, 1992; Stack & Lester, 1991; Stillion & Stillion, 1998). However, one
finding is clear; religiosity is believed to predict suicide ideation.

The Relationship between Suicide Attitudes and Suicide Ideation

It is important to examine the role of suicide attitudes in predicting suicide
ideation. Suicide attitudes, specifically the extent to which a person believes suicide is an
acceptable action, have been linked to actual suicide behavior, including suicide attempts
and completions (Gutierrez, King, & Ghaziuddin, 1996; Limbacher & Domino, 1985).
Stack and Wasserman (1995) provide evidence that people who maintain attitudes which
are more accepting of suicide have a higher than average suicide risk. In addition, Gibb
et al. (2006) suggest that “favorable attitudes toward suicide may increase the
attractiveness of suicide should situational cues arise, placing an individual at increased
risk of suicidal ideation” (p. 13). Furthermore, Joe, Romer, and Jamieson (2007)
maintain that people who feel that it is acceptable to commit suicide are more likely to
have thoughts about killing themselves than are those who do not find suicide to be an
acceptable action; therefore, favorable attitudes toward suicide seem to encourage more
acceptance of the behavior of suicide, possibly resulting in increased suicide ideation.
Various other research studies have found that people who are more approving of suicide
often have higher levels of suicide ideation and a higher risk of suicide attempts (Eshun, 2003; Gutierrez et al., 1996; Limbacher & Domino, 1985; Stein, Brom, Elizur, & Witzum, 1998; Wellman & Wellman, 1988).

The Current Research

As a result of suicide being one of the leading causes of death among young adults in the United States, especially among those in the college population, there is a need to investigate the risk and protective factors associated with suicidal ideation (Dogra et al., 2008). Consequently, campus suicide prevention programs can utilize this information to identify college students who are at risk for experiencing suicide ideation, because suicide prevention programs are an important part of college counseling and health centers, where effective suicide screening is expected to take place (Stephenson et al., 2006).

Many people who experience high levels of depression, high levels of hopelessness, high levels of perceived stress, and/or low levels of religiosity do not have suicidal thoughts. Thus, one must question what moderates the likelihood that depression, hopelessness, perceived stress, and religiosity predict suicide ideation in young adult, college students. There is limited research answering such a question.

As previously discussed, past research has found associations between suicide ideation and depression, hopelessness, perceived stress, and religiosity. It has even found predictive relationships, demonstrating that suicide ideation is predicted by depression, hopelessness, perceived stress, and religiosity. However, there is limited research examining what factors might moderate the relationships between suicide ideation and depression, hopelessness, perceived stress, and religiosity.
One past research study hypothesized that suicide attitudes might serve as a moderator of the relationships between various predictors of suicide ideation and suicide ideation; specifically, these researchers examined suicide attitudes as a moderating factor in the relationships between depression and suicide ideation and hopelessness and suicide ideation (Gibb et al., 2006). Gibb et al. (2006) suggested that suicide attitudes may serve as a moderating factor, because people vary greatly in the degree to which they find suicide to be an acceptable action, indicating that some people consider suicide to be an acceptable option under some circumstances, whereas others do not consider it an acceptable option under any circumstances. Furthermore, they argued that research shows that people who have more accepting attitudes toward suicide have higher levels of suicide ideation, and therefore, they maintained that suicide attitudes could moderate the relationships between predictors of suicide ideation and suicide ideation itself, strengthening these relationships. Their results indicated that hopelessness and depression significantly predict suicide ideation among men who maintain more accepting attitudes toward suicide. These findings provided evidence for their moderation hypothesis. However, there is a need to further explore their moderation hypothesis again, using depression and hopelessness as predictors of suicide ideation for the purposes of replication and contributing new findings to the research by examining new variables, such as perceived stress and religiosity, as predictors of suicide ideation.

Therefore, the current study examined suicide attitudes as a potential moderating factor in the relationships between predictors of suicide ideation and suicide ideation. The current research proposed a moderation model based on the work of Gibb et al. (2006). This model suggested that the relationships between depression and suicide
ideation, hopelessness and suicide ideation, perceived stress and suicide ideation, and religiosity and suicide ideation are moderated by suicide attitudes, which are hypothesized to strengthening these relationships (See Figure 2).

The present study focused on factors related to suicide ideation in a young adult, college student population. It examined various factors previously found to predict suicide ideation, investigating whether the relationships between the factors and suicide ideation are enhanced by suicide attitudes. These factors included depression, hopelessness, perceived stress, and religion. The purpose of this research was to establish depression, hopelessness, perceived stress, and religion as predictors of suicide ideation in young adults and to determine the extent to which suicide attitudes moderate the relationships between these predictors and suicide ideation. It was expected that

Figure 2. Diagram of the moderation model. This figure illustrates the moderation model proposed by this research, where suicide moderates the relationship between predictors of suicide ideation and suicide ideation.
depression, hopelessness, and perceived stress would be positively associated with suicide ideation, and religiosity would be negatively associated with suicide ideation. Depression, hopelessness, perceived stress, and religiosity were hypothesized to be significant predictors of suicide ideation such that higher levels of depression, hopelessness, and perceived stress would predict higher levels of suicide ideation and higher levels of religiosity would predict lower levels of suicide ideation. Moreover, the researcher anticipated that attitudes more accepting of suicide would be associated with greater suicide ideation and attitudes less accepting of suicide ideation would be associated with lower suicide ideation. Finally, suicide attitudes were expected to moderate the relationships between the predictors and suicide ideation, because attitudes concerning suicide are likely to serve to either protect against suicidal thoughts or put one at risk for suicidal thoughts. People with attitudes that are more accepting of suicide were predicted to be more susceptible to the relationships between the predictor variables and suicide ideation and thus, more susceptible to experiencing suicide ideation.

In summary, young adults who maintain attitudes more accepting of suicide were hypothesized be those who have the greatest risk for experiencing suicide ideation in the presence of high levels of depression, high levels of hopelessness, high levels of perceived stress, and/or low levels of religiosity. It was expected that the relationships between depression and suicide ideation, hopelessness and suicide ideation, and perceived stress and suicide ideation would be strongest among participants reporting positive, accepting attitudes toward suicide. The relationship between religiosity and suicide ideation was projected to be strongest in individuals with attitudes less accepting of suicide.
Chapter Two
Method

Participants

Participants in this study included 565 university students (386 women, 179 men) enrolled in undergraduate psychology courses who volunteered to participate in the study in return for extra credit in their psychology courses. Of these participants, 431 (76.3%) identified themselves as being White/Caucasian American, 78 (13.8%) identified themselves as being Black/African American, 17 (3.0%) identified themselves as being Hispanic/Latino American, 12 (2.1%) identified themselves as being Asian American, 8 (1.4%) identified themselves as being Arab American, and 19 (3.4%) identified themselves as being from other ethnic groups. The mean age of the participants was 20.19 years (SD = 3.29).

Materials

One survey was administered to all participants, using PsychData. The survey was comprised of the following measures: Beck Depression Inventory-II (BDI-II), Beck Hopelessness Scale (BHS), Perceived Stress Scale (PSS), Intrinsic/Extrinsic-Revised Scale (I/E-R), the Suicide Opinion Questionnaire (SOQ), Adult Suicide Ideation Questionnaire (ASIQ), and a demographics form.

PsychData. The measures were administered using PsychData. PsychData is a company that provides an internet-based platform for data collection to researchers (see www.PsychData.com for details on the company, and security issues). Data are collected from online surveys, accessed by participants through an internet address and password (optional). Data are stored on PsychData’s computer servers. PsychData allowed for
computerized administration of the survey, displaying the self-report items. The measures were all self-report measures on which participants provided a response to a scale. The use of PsychData permitted standardized administration of the measures as well as self-pacing through the survey.

**Beck Depression Inventory-II (BDI-II).** The BDI-II is a self-report instrument developed by Beck, Steer, and Brown (1996) to measure the severity of depressive symptoms in adults; it assesses symptoms of depression as defined by the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition*. This inventory contains 21 items, most of which assess depressive symptoms on a four point rating scale from zero to three. The two items that are exceptions to this are items 16 and 18; the scale for these two items consists of 0, 1a, 1b, 2a, 2b, 3a, & 3c. For this inventory, people are asked to report feelings consistent with their own over the past two weeks; the ratings for each item are summed to obtain a total score. Possible inventory scores range from 0 to 63. Clinical interpretation of total scores is accomplished through criterion-referenced procedures utilizing the following interpretive ranges: 0-13 - minimal depression, 14-19 - mild depression, 20-28 - moderate depression, and 29-63 - severe depression (Beck et al., 1996). The BDI-II has good reliability, yielding a coefficient alpha of .92 for the outpatient population (n = 500) in the sample referred to in the manual and a coefficient alpha of .93 for the college students (n = 120) in the sample (Beck et al., 1996). The BDI-II demonstrates good psychometric properties, and there is evidence that it is a valid measure of depression symptoms (Beck et al., 1996; Beck, Steer, & Garbin, 1988). The coefficient alpha obtained for the BDI-II in this study is .94, suggesting a high level of internal consistency.
**Beck Hopelessness Scale (BHS).** The BHS is a 20-item scale designed by Beck, Weissman, Lester, & Trexler (1974) to measure negative attitudes about the future as perceived by adults. For this inventory, people are asked to answer the questionnaire based on their attitudes during the preceding week. The BHS is comprised of true-false statements that assess the extent of negative expectations about the future, the general hopelessness construct. Items are scored with a true or false response, where nine are keyed false and 11 are keyed true to indicate endorsement of pessimism about the future; total scores range from 0 to 20, with higher scores indicating a greater degree of hopelessness. The BHS has shown good reliability with high internal consistency across seven clinical samples: suicide ideators, suicide attempters, alcoholics, heroin addicts, single-episode Major Depression Disorders, recurrent-episode Major Depression Disorders, and Dysthymic Disorders. The Kuder-Richardson reliabilities are .92, .93, .91, .82, .92, .92, and .87, respectively (Beck & Steer, 1988). It has obtained a Cronbach’s alpha of .78 in a sample (n=1,475) of undergraduate college students and .81 in another sample (n=302) of undergraduate college students (Troister & Holden, 2010; Wilson & Deane, 2010). The coefficient alpha obtained for the BHS in this study is .87, suggesting a high level of internal consistency. Regardless, the BHS demonstrates good psychometric properties, and there is evidence that it is a valid measure of negative attitudes about the future (pessimism) held by adults (Beck & Steers, 1988).

**Perceived Stress Scale (PSS).** The PSS is a 14-item global measure of perceived stress designed by Cohen, Kamarck, and Mermelstein (1983) to assess the degree to which situations in one’s life are viewed as being stressful. An example of an item included on the PSS is: “In the last month, how often have you felt difficulties were
pling up so high that you could not overcome them?” Responses are based on a 5-point Likert scale (0 = never; 1 = almost never; 2 = sometimes; 3 = fairly often; 4 = very often) and seven items require reverse scoring. Each item is then summed to produce a total score ranging from 0 to 56, with higher scores indicating greater levels of perceived stress. Internal consistency of the PSS is estimated to range from .78 to .87 (Cohen et al., 1983; Morrison & O’Connor, 2005; O’Connor & O’Connor, 2003; Wichianson, Bughi, Unger, Spruijt-Metz, & Nguyen-Rodriguez, 2009). The coefficient alpha obtained for the PSS in this study is .78, suggesting a high level of internal consistency.

**Intrinsic-Extrinsic-Revised Scale (I/E-R).** The I/E-R is a 14-item self-report measure designed by Gorsuch and McPherson (1989) to assess religiosity and is a modified version of the Age-Universal I-E Scale (Gorsuch & Venable, 1983), both of which are based on the Religious Orientation Scale (ROS) originally designed by Allport and Ross (1967). This scale assesses religious orientation with two dimensions: intrinsic and extrinsic religious orientation. The I/E-R measures religiosity along the three distinct dimensions, which were identified by Kirkpatrick (1989) in his reanalysis of the ROS: intrinsic religiosity which measures genuine and committed religiosity, extrinsic-personal religiosity which measures religiosity for more personal gain, and extrinsic-social religiosity which measures religiosity for more social gain. Each item is scored on a 5-point scale, according to how much the participant agrees with the attitude and behavior expressed by the item. As suggested by Kirkpatrick and Hood, each item is scored on a 5-point scale according to how much the participant perceives the attitude and behavior to apply to them (1 = Not at all; 2 = A little bit; 3 = Moderately; 4 = Quite a bit; 5 = Very much so), allowing nonreligious individuals the option of endorsing “not at all.”
current study utilizes the Intrinsic scale of the I/E-R, because it measures a person’s degree of personal commitment to religion, regardless of extrinsic social or individual gains that may come with being religious. Eight items (three reversed scored) on the I/E-R scale measure intrinsic orientation and only three items each measure the personal and social extrinsic orientations. Items are summed to produce a total score on each scale, ranging from eight to 40 for the Intrinsic-Revised scale and three to 15 for each Extrinsic-Revised scale, with higher scores indicating greater levels of religiosity on that dimension. The reliability of the Intrinsic scale is estimated to be .83, while reliabilities for the Extrinsic scales are lower: extrinsic-personal = .72; extrinsic-social = .68; and extrinsic-combined (personal and social) = .71 (Salsman & Carlson, 2005). The reliabilities of the extrinsic scales are lower partly because there are a fewer number of items making up each extrinsic scale. The Cronbach alphas obtained in the present study are .77 for the Intrinsic scale, .84 for the Extrinsic-Social scale, and .86 for the Extrinsic-Personal scale, indicating good internal reliability. Furthermore, the coefficient alpha for the Intrinsic scale is consistent with a coefficient alpha of .76 found in a past study that measured intrinsic religiosity in a college sample (Duffy, 2010).

**Adult Suicide Ideation Questionnaire (ASIQ).** The ASIQ is a 25-item self-report measure of suicide ideation and behavior in adults designed by Reynolds (1991b). Participants rate the frequency of suicidal thoughts or behavior during the past month, using a 7-point scale for each item (0 = Never had this thought; 1 = I had this thought before, but not in the last month; 2 = About once a month; 3 = Couple of times a month; 4 = About once a week; 5 = Couple of times a week; 6 = Almost every day). The ASIQ yields a total score, ranging from 0 to 150 with higher scores indicating greater suicide
ideation. The ASIQ exhibits good reliability and validity (Reynolds, 1991a;1991b). The ASIQ has high internal consistency reliabilities for the adult community sample, college student sample, and psychiatric sample with Cronbach’s alpha coefficients of .96, .96, and .97, respectively (Reynolds, 1991a;1991b). The coefficient alpha obtained for the ASIQ in this study is .99, suggesting a high level of internal consistency. The ASIQ is significantly correlated with measures of depression ($r = .60$) and hopelessness ($r = .53$) in a sample of college students (Reynolds, 1991a).

**Suicide Opinion Questionnaire-Right-To-Die Subscale (SOQ-RTD).** The Suicide Opinion Questionnaire (SOQ) designed by Domino, Moore, Westlake, & Gibson (1982) includes 100 self-report items designed to measure attitudes toward suicide. It consists of a number of different subscales. Participants respond to each item on a 5-point Likert-type scale (1=Strongly Disagree, 2 = Disagree, 3 = Undecided, 4=Agree, and 5=Strongly Agree). The questionnaire is scored such that higher scores indicate a stronger relationship between each factor and suicide. The SOQ has been shown to possess good psychometric properties (Domino et al., 1982).

One of the subscales of the SOQ is the Suicide Opinion Questionnaire-Right to Die (SOQ-RTD) subscale. This subscale has been chosen to be utilized in this study for various reasons. The SOQ-RTD best assesses the construct of interest, suicide attitudes related to the acceptance of suicide. Some research has shown that it has stronger psychometric properties than the other SOQ scales (Domino, Su, & Shen, 2000; McAuliffe, Corcoran, Keeley, & Perry, 2003; Rogers & DeShon, 1992). Lastly, research has demonstrated that it is associated with suicide ideation (McAuliffe et al., 2003). The SOQ-RTD consists of eight items that assess attitudes toward suicide related to the
acceptance of suicide under some circumstances. Participants rate each item on a 5-point, Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree). Scores on the SOQ-RTD can range from 8 to 40 with higher scores being representative of more positive attitudes toward suicide that are accepting of suicide (Domino et al., 1982). The SOQ-RTD exhibits good reliability and validity (Domino, 1996; Domino, MacGregor, Hannah, 1988; McAuliffe et al., 2003). It has good test-retest reliability, ranging from .88 to .89 in samples of college students and adults, respectively (Domino, 1996). It also has a good internal consistency reliability of .85 (Gibb et al., 2006). However, the coefficient alpha obtained for the SOQ-RTD in this study is .73, suggesting a high level of internal consistency.

**Demographics Measure.** The demographics measure requires participants to report their age, gender, religious affiliation, and ethnicity.

**Procedure**

Participants completed the online survey on one occasion in an individual setting. The completion of the survey measure required approximately 30 to 60 minutes. Participants were not allowed to participate in the study until they read and signed the provided consent form. After a participant consented to complete the research study, he or she was presented with the survey. Participants were asked to complete the BDI-II, BHS, PSS, I/E-R, ASIQ, and SOQ-RTD. Subsequently, participants reported demographic information.

To avoid the possible confound of order effects, each participant was randomly assigned to one of eight conditions. The conditions differed only in the ordering of measures. In all of the conditions, the demographics measure was administered first. All
other measures were randomly assigned to position within condition. Condition one ordering was as follows: (1) BDI-II, (2) BHS, (3) PSS, (4) I/E-R, (5) SOQ-RTD, and (6) ASIQ. Condition two ordering was: (1) BDI-II, (2) I/E-R, (3) SOQ-RTD, (4) PSS, (5) BHS, and (6) ASIQ. Condition three ordering was as follows: (1) I/E-R, (2) ASIQ, (3) SOQ-RTD, (4) BHS, (5) BDI-II, and (6) PSS. Condition four ordering was: (1) PSS, (2) BDI-II, (3) ASIQ, (4) BHS, (5) I/E-R, and (6) SOQ-RTD. Condition five ordering was as follows: (1) ASIQ, (2) SOQ-RTD, (3) BHS, (4) BDI-II, (5) PSS, and (6) I/E-R. Condition six ordering was: (1) BHS, (2) I/E-R, (3) PSS, (4) SOQ-RTD, (5) ASIQ, and (6) BDI-II. Condition seven ordering was as follows: (1) SOQ-RTD, (2) PSS, (3) ASIQ, (4) BDI-II, (5) I/E-R, and (6) BHS.

Upon completion of the study measures, a debriefing screen was shown to all participants before they signed out of the online study session. The debriefing included both an explanation of research related to the importance of identifying predictors of suicide ideation and the potential role of suicide attitudes in moderating the relationships between various predictors and suicide ideation, how the study was designed to identify predictors of suicide ideation and determine the role of suicide attitudes in moderating the relationships between predictors and suicide ideation, the intentions of the survey, and the possible implications of identifying predictors of suicide ideation and demonstrating that the relationships between predictors and suicide ideation are moderated by suicide attitudes.
Chapter Three

Results

Descriptives and Correlations

Descriptive statistics and correlations among the study variables are presented in Tables 1 and 2. The means and standard deviations are consistent with those obtained in other non-clinical samples (Chang, 2002; Duffy, 2010; Gibb et al., 2006; Grover et al., 2009; Hirsch et al., 2007; Jeglic, Pepper, Vanderhoff, & Ryabchenko, 2007; McAuliffe et al., 2003; Simonson, 2008; Stephenson et al., 2006; Walker and Bishop, 2005; Walker, Wingate, Obasi, & Joiner Jr., 2008; Wichianson et al., 2009). Also, analyses comparing the means between males and females for each of the study variables revealed no significant gender differences among the variables examined in this study.

Table 1

Correlations and Descriptive Statistics for the Overall Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BDI-II</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.80</td>
<td>9.24</td>
</tr>
<tr>
<td>2. BHS</td>
<td>0.60**</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td>3.00</td>
<td>3.70</td>
</tr>
<tr>
<td>3. PSS</td>
<td>0.63**</td>
<td>0.56**</td>
<td>---</td>
<td></td>
<td></td>
<td>25.19</td>
<td>7.78</td>
</tr>
<tr>
<td>4. I-R</td>
<td>-0.10*</td>
<td>-0.14**</td>
<td>-0.12**</td>
<td>---</td>
<td></td>
<td>23.53</td>
<td>6.29</td>
</tr>
<tr>
<td>5. SOQ-RTD</td>
<td>0.11*</td>
<td>0.23**</td>
<td>0.16**</td>
<td>-0.19**</td>
<td>---</td>
<td>19.87</td>
<td>4.94</td>
</tr>
<tr>
<td>6. ASIQ</td>
<td>0.52**</td>
<td>0.51**</td>
<td>0.37**</td>
<td>-0.10*</td>
<td>.20**</td>
<td>11.40</td>
<td>21.79</td>
</tr>
</tbody>
</table>

** $p<.01$ (two-tailed)  
* $p<.05$ (two-tailed)

Note. BDI-II = Beck Depression Inventory-II; BHS = Beck Hopelessness Scale; PSS = Perceived Stress Scale; I-R = Intrinsic Religiosity Revised Scale; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale; ASIQ = Adult Suicide Ideation Questionnaire.
Table 2

Descriptive Statistics for Gender and Ethnicity

<table>
<thead>
<tr>
<th>Variable</th>
<th>BDI-II</th>
<th>BHS</th>
<th>PSS</th>
<th>I-R</th>
<th>SOQ-RTD</th>
<th>ASIQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>Mean</td>
<td>8.77</td>
<td>2.95</td>
<td>24.98</td>
<td>23.43</td>
<td>19.81</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>9.27</td>
<td>3.63</td>
<td>7.88</td>
<td>6.22</td>
<td>4.93</td>
</tr>
<tr>
<td>Males</td>
<td>Mean</td>
<td>8.85</td>
<td>3.11</td>
<td>25.65</td>
<td>23.76</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>9.18</td>
<td>3.85</td>
<td>7.54</td>
<td>6.43</td>
<td>4.97</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian American</td>
<td>Mean</td>
<td>8.67</td>
<td>2.88</td>
<td>25.00</td>
<td>23.65</td>
<td>19.67</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>9.23</td>
<td>3.57</td>
<td>7.88</td>
<td>6.40</td>
<td>5.05</td>
</tr>
<tr>
<td>Black/African American</td>
<td>Mean</td>
<td>10.36</td>
<td>3.51</td>
<td>25.97</td>
<td>22.78</td>
<td>20.44</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>10.49</td>
<td>4.65</td>
<td>8.11</td>
<td>5.99</td>
<td>4.63</td>
</tr>
<tr>
<td>Latino/Hispanic American</td>
<td>Mean</td>
<td>6.82</td>
<td>2.47</td>
<td>25.35</td>
<td>26.00</td>
<td>19.47</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>6.52</td>
<td>2.81</td>
<td>7.14</td>
<td>4.83</td>
<td>4.58</td>
</tr>
<tr>
<td>Asian American</td>
<td>Mean</td>
<td>5.75</td>
<td>4.33</td>
<td>24.42</td>
<td>24.83</td>
<td>20.75</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.77</td>
<td>2.74</td>
<td>6.64</td>
<td>6.10</td>
<td>5.34</td>
</tr>
<tr>
<td>Native American*</td>
<td>Mean</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Arab American</td>
<td>Mean</td>
<td>8.88</td>
<td>1.88</td>
<td>23.50</td>
<td>19.13</td>
<td>21.00</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>9.30</td>
<td>1.73</td>
<td>8.55</td>
<td>6.49</td>
<td>3.21</td>
</tr>
<tr>
<td>Other</td>
<td>Mean</td>
<td>9.05</td>
<td>3.63</td>
<td>27.21</td>
<td>22.79</td>
<td>21.42</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>7.80</td>
<td>3.93</td>
<td>4.61</td>
<td>5.03</td>
<td>4.27</td>
</tr>
</tbody>
</table>

*There were no Native Americans in the sample.

Note. BDI-II = Beck Depression Inventory-II; BHS = Beck Hopelessness Scale; PSS = Perceived Stress Scale; I-R = Intrinsic Religiosity Revised Scale; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale; ASIQ = Adult Suicide Ideation Questionnaire.
**Moderation Analyses**

The moderation hypotheses were tested using stepwise hierarchical multiple regression analyses. Four separate stepwise hierarchical regression analyses were conducted to determine if suicide attitudes moderate the relationships between depression and suicide ideation, hopelessness and suicide ideation, perceived stress and suicide ideation, and religiosity and suicide ideation.

First, the moderation hypothesis for the relationship between depression and suicide ideation was examined. Using suicide ideation as the criterion, participants’ depression and suicide attitude scores were entered into the first step of a hierarchical regression, allowing for the unique relationship between depression and suicide ideation to be investigated. Next, the two-way interaction between suicide attitudes and depression was entered into the second step to determine if suicide attitudes moderate the relationship between depression and suicide ideation. As can be seen in Table 3, each of the main effects was significant, but the two-way interaction between depression and suicide attitudes was not significant. Thus, depression and suicide attitudes seemed to independently predict suicide ideation, but suicide attitudes did not serve as a moderator in the relationship between depression and suicide ideation.

Second, the moderation hypothesis for the relationship between hopelessness and suicide ideation was explored. Again, using suicide ideation as the criterion, participants’ hopelessness and suicide attitude scores were entered into the first step of another hierarchical regression which permitted the unique relationship between hopelessness and suicide ideation to be examined. Next, the two-way interaction between suicide attitudes
Table 3

The Results of a Multiple Regression Analysis for Depression and Suicide Attitudes Predicting Suicidal Ideation

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Variable</th>
<th>Standardized Beta</th>
<th>t</th>
<th>p (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BDI-II</td>
<td>0.50</td>
<td>14.08</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>SOQ-RTD</td>
<td>0.15</td>
<td>4.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>R² = 0.291</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Step 2 | BDI-II        | 0.50              | 13.85| <0.001        |
|        | SOQ-RTD       | 0.15              | 4.20 | <0.001        |
|        | BDI-II x SOQ-RTD | -0.01        | -0.17| 0.87          |
|        | R² = 0.291    |                   |      |               |
|        | Δ R² = 0.000  |                   |      |               |

Note: BDI-II = Beck Depression Inventory-II; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale.

and hopelessness was entered into the second step to determine if suicide attitudes moderate the relationship between hopelessness and suicide ideation. The results are presented in Table 4 and demonstrate that the main effects of hopelessness and suicide attitudes were significant. Furthermore, the results also show that the two-way interaction between hopelessness and suicide attitudes was not significant. Hopelessness and suicide attitudes independently predicted suicide ideation, and suicide attitudes did not moderate the relationship between hopelessness and suicide ideation.

Third, the researcher tested the moderation hypothesis for the relationship between perceived stress and suicide ideation. Participants’ perceived stress and suicide attitude scores were entered into the first step of a hierarchical regression, where suicide ideation was utilized as the criterion. As described before, this permitted researchers to
Table 4

The Results of a Multiple Regression Analysis for Hopelessness and Suicide Attitudes Predicting Suicidal Ideation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>t</th>
<th>p (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHS</td>
<td>0.49</td>
<td>13.27</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.09</td>
<td>2.44</td>
<td>0.02</td>
</tr>
<tr>
<td>$R^2 = 0.270$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHS</td>
<td>0.49</td>
<td>12.72</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.09</td>
<td>2.43</td>
<td>0.02</td>
</tr>
<tr>
<td>BHS x SOQ-RTD</td>
<td>0.02</td>
<td>0.60</td>
<td>0.55</td>
</tr>
<tr>
<td>$R^2 = 0.270$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ $R^2 = 0.000$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. BHS = Beck Hopelessness Scale; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale.

examine the unique relationship between perceived stress and suicide ideation. In the second step, the two-way interaction between suicide attitudes and perceived stress was entered into the regression analysis to determine if suicide attitudes moderate the relationship between perceived stress and suicide ideation. The results indicate that there was a main effect of perceived stress and suicide attitudes. Also, the results illustrate that the two-way interaction between perceived stress and suicide attitudes was significant (See Figure 3). These results are presented in Table 5. Perceived stress and suicide attitudes predicted suicide ideation. In addition, the relationship between perceived stress and suicide ideation was moderated by suicide attitudes.

Finally, the moderation hypothesis was investigated again for the relationship between religiosity and suicide ideation, with suicide ideation as the criterion. Participants’ religiosity and suicide attitude scores were entered into step one of a
Figure 3. Chart of suicide attitudes moderating the relationship between perceived stress and suicide ideation. This chart illustrates the relationship between perceived stress and suicide attitudes and how this relationship impacts suicide ideation.

Table 5

The Results of a Multiple Regression Analysis for Perceived Stress and Suicide Attitudes Predicting Suicidal Ideation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>t</th>
<th>p (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSS</td>
<td>0.35</td>
<td>8.81</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.15</td>
<td>3.78</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>$R^2 = 0.157$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSS</td>
<td>0.36</td>
<td>9.06</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.14</td>
<td>3.69</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PSS x SOQ-RTD</td>
<td>0.08</td>
<td>2.04</td>
<td>0.04</td>
</tr>
<tr>
<td>$R^2 = 0.164$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2 = .006$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. PSS = Perceived Stress Scale; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale.
hierarchical regression, allowing the unique relationship between religiosity and suicide ideation to be examined. The two-way interaction between suicide attitudes and religiosity was entered into the second step to determine if suicide attitudes moderate the relationship between religiosity and suicide ideation. The results are presented in Table 6 and demonstrate that there was no significant main effect of religiosity, but there was a significant main effect of suicide attitudes. In addition, the results show that the two-way interaction between religiosity and suicide attitudes was not significant. Therefore, suicide ideation was not predicted by religiosity, but it was predicted by suicide attitudes. As a result of there being no predictive relationship between religiosity and suicide ideation, suicide attitudes could not serve as a moderator of such a relationship.

Table 6

*The Results of a Multiple Regression Analysis for I-R and SOQ-RTD Predicting Suicidal Ideation*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>t</th>
<th>p (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-R</td>
<td>-0.06</td>
<td>-1.45</td>
<td>0.15</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.19</td>
<td>4.57</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>R² = 0.045</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-R</td>
<td>-0.07</td>
<td>-1.53</td>
<td>0.13</td>
</tr>
<tr>
<td>SOQ-RTD</td>
<td>0.19</td>
<td>4.59</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>I-R x SOQ-RTD</td>
<td>-0.22</td>
<td>-0.51</td>
<td>0.61</td>
</tr>
<tr>
<td><strong>R² = 0.045</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔR² = 0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* I-R = Intrinsic Religiosity Revised Scale; SOQ-RTD = Suicide Opinion Questionnaire-Right to Die subscale.
Chapter Four

Discussion

Conclusions

The primary goals of this study were to establish depression, hopelessness, perceived stress, and religiosity as predictors of suicide ideation among a sample of college students and to determine whether or not suicide attitudes (the degree to which people view suicide as an acceptable action) moderate the relationships between depression and suicide ideation, hopelessness and suicide ideation, perceived stress and suicide ideation, and religiosity and suicide ideation.

The results of this study provided evidence that depression, hopelessness, perceived stress, and suicide attitudes are independent predictors of suicide thoughts. Specifically, the researcher demonstrated that increased levels of depression, increased levels of hopelessness, increased levels of perceived stress, and more accepting attitudes toward suicide are significantly related to and seem to be predictive of suicide ideation among college students. These findings are congruent with past research and provide further evidence that depression, hopelessness, perceived stress, and suicide attitudes are risk factors for suicide ideation (Beck et al., 1985; Chang, 2002; Eshun, 2003; Garlow et al., 2008; Gibb et al., 2006; Gutierrez et al., 1996; Heisel et al., 2003; Hirsch and Ellis, 1996; Hirsch et al., 2007; Joe et al., 2007; Kisch et al., 2005; Lipschitz, 1995; Stein et al., 1998; Singh & Joshi, 2008; Stephenson et al., 2006; Vilhjalmsson et al., 1998; Weber et al., 1997).

However, the results did not show that religiosity is a predictor of suicide ideation. This research did not support the notion that religiosity serves as a protective
factor against thoughts of suicide among college students. This finding is surprising, given that there is past research suggesting that religiosity has a significant relationship with suicide ideation such that increased levels of religiosity are expected to protect against suicidal thoughts (Simonson, 2008; Walker & Bishop, 2005; Zhang & Jin, 1996). One possible explanation for this finding may be that college students who describe themselves as religious or report greater religiosity do not adhere closely to the moral constraints of religious beliefs or to religious doctrine, especially doctrine prohibiting suicidal behavior.

Finally, suicide attitudes have rarely been examined as a moderator in past research. In fact, only one past study conducted by Gibb et al. (2006) presented research, suggesting suicide attitudes moderate the relationships between levels of hopelessness and suicide ideation as well as between levels of depression and suicide ideation among male college students. Their research indicated that levels of hopelessness and depressive symptoms are only related to suicide ideation among students who are more accepting of suicide. The current research did not find support for the moderation hypotheses among the relationships between depression and suicide ideation or hopelessness and suicide ideation. However, the results of the current study did provide evidence to support the moderating role of suicide attitudes, but only among the relationship between perceived stress and suicide ideation. For college students, the relationship between levels of perceived stress and levels of suicide ideation was strongest among students who had attitudes more accepting of suicide therefore, suggesting that high levels of perceived stress better predict suicide ideation among college students, when those students hold more accepting attitudes toward suicide. This
finding is a new and important contribution to the research related to identifying predictors of suicide ideation and the moderating factors of the relationships between the predictors and suicide ideation in a college student sample, given that suicide attitudes have not previously been shown to moderate the relationship between perceived stress and suicide ideation. These results, like the findings of Gibb et al. (2006), presented further evidence that suicide attitudes may serve as a moderating factor in the relationships between predictors of suicide ideation and suicide ideation, even though the moderation hypothesis was only supported for perceived stress and not depression and hopelessness. Although the proposed moderation hypotheses of suicide attitudes are not supported for the variables of depression, hopelessness, and religiosity, this research suggested that depression, hopelessness, and suicide attitudes are independent predictors of suicide ideation among a college student sample and that religiosity is not a predictor of suicide ideation.

Limitations and Future Research

The current research has limitations which should be taken into consideration. First, this research is cross-sectional, preventing causal conclusions from being made. Future longitudinal research is needed to determine whether the interaction between perceived stress and suicide attitudes actually predicts the onset of suicide ideation. Also, this study assumes that individuals’ attitudes toward suicide are stable and enduring. Further research should (1) conduct longitudinal studies to examine the extent to which suicide attitudes change over time, (2) determine factors that may influence individuals’ suicide attitudes to change, and (3) explore how such factors contribute to changes in suicide attitudes. Third, the assessment of each variable in this study was based on
participants’ self-report. Thus, the impact of shared method variance on the observed relationships among variables is unknown. When seeking to replicate the current findings or exploring new ideas in this area of research, future research should attempt to utilize multi-method assessments of each variable, such as self-report measures accompanied by personal interviews conducted by the researcher.

In addition, other limitations should be addressed by future research. For example, participants in the current study were university undergraduate students, creating a fairly high functioning sample. Consequently, the current findings may not generalize to other populations. Future research should replicate this research in samples where the levels of depression, hopelessness, perceived stress, and suicide ideation are more severe (e.g. clinical samples). Finally, this study only examines suicide ideation as the criterion. This may have impacted the extent to which significant findings were observed. Perhaps future research should examine other variables, such as suicide behavior, which could encompass lifetime suicide ideation and attempts. Suicide behavior might serve as a better criterion, because it measures both suicide ideation and suicide attempts, both of which have an important role in the suicide process. Therefore, it is possible that the moderation hypotheses for depression, hopelessness, and religiosity, which were proposed but not supported by this study may be observed if this study is replicated using suicide behavior as the criterion. Such future research could provide evidence for risk (e.g. depression, hopelessness, perceived stress, or other variables) and protective (e.g. religiosity or other variables) factors of suicide behavior, including...
suicide ideation and suicide attempts. It should examine the role of suicide attitudes in moderating the relationships between suicide behavior and such predictors of suicide behavior.

**Implications**

Nevertheless, the findings of this research are still robust and important. The results present strong evidence that suicide attitudes serve to moderate the predictive relationship between perceived stress and suicide ideation among young adult, college students. This finding and the additional findings that depression, hopelessness, and suicide attitudes are also independently predictive of suicide ideation among college students have important clinical implications for suicide assessment and prevention. They suggest that suicide prevention programs, counseling centers, and psychology clinics on college campuses should include suicide attitudes, as well as depression, hopelessness, and perceived stress, in their assessment and identification of individuals who may be at risk for engaging in suicide behavior.

Clinicians and practitioners can use high levels of depression, hopelessness, and perceived stress and more accepting attitudes toward suicide to identify young adult college students who are at risk for experiencing suicide ideation. Research shows that individuals differ in their reasons for viewing suicide as an acceptable action (Droogas et al., 1982; Ingrams & Ellis, 1995; Gibb et al., 2006). Understanding the conditions under which someone finds suicide to be an acceptable action and knowing his or her levels (e.g. high or low) of depression, hopelessness, and perceived stress could provide important information related to that person’s suicide risk. Thus, treatment may be
provided before suicide ideation even occurs or before a person progresses in the suicide process beyond the stage of suicide ideation.
References


