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Extracurricular Involvement and Anxiety in Relation to Suicide Ideation among College Students

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EXTRACURRICULAR INVOLVEMENT AND ANXIETY IN
RELATION TO SUICIDE IDEATION AMONG COLLEGE STUDENTS

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for

the Degree Bachelor of Arts with

Honors College Graduate Distinction at Western Kentucky University

By

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* * * * *

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2016

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ABSTRACT

Little research exists on college students' extracurricular involvement as it relates to anxiety and suicidal ideation. The current study seeks to examine the relationships between extracurricular involvement, anxiety, and suicidal ideation. First, it was hypothesized that increased extracurricular involvement would relate to increased anxiety. Second, increased anxiety was expected to mediate the relationship between involvement and explicit suicidal ideation. Third, increased anxiety was expected to mediate the relationship between involvement and implicit suicidal ideation. Fourth, it was expected that thwarted belongingness would be a more accurate predictor of suicidal ideation than perceived burdensomeness. The sample included 80 undergraduates with a mean age of 19.11 ($SD=2.06$). Participants completed multiple self-report questionnaires and a computerized task that measured implicit suicidal ideation. Results indicated that increased involvement was related to decreased anxiety. Lower anxiety was significantly associated with decreased explicit suicidal ideation. No significant relationships were found among involvement, anxiety, and implicit suicidal ideation. Results from this study could offer valuable insight into factors that contribute to or lessen suicidal ideation.

Keywords: College Involvement, Anxiety, Suicidal Ideation, Implicit Association Task, Extracurricular Activities

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CHAPTER 1

INTRODUCTION

Suicide rates in the United States are alarmingly high, especially among young adults. According to the Center for Disease Control and Prevention (CDC; 2013), suicide is the second leading cause of death among persons aged 15-34 years. Looking more specifically at college students (ages 18-24), 8% had suicidal thoughts and 2.4% made suicide plans in 2013 (Substance Abuse and Mental Health Services, 2014). With such a large number of individuals experiencing suicidal behaviors, it is crucial to gain a better understanding of all components involved in suicidality. Research should focus on both factors that contribute to suicidality and factors that serve as protectors against suicidality. A more extensive knowledge of these factors may aid in reducing the number of individuals who experience suicidal thoughts and behaviors.

Terminology and Definitions

In order to better understand the current study, it is important to note some of the most frequently used terminology and definitions. First, this study requires differentiation between the three types of suicidal behaviors: suicidal ideation, suicide plan, and suicide attempt. The current study examines suicidal ideation, which includes thoughts about ending one's life without taking actions to do so (Nock et al., 2008). Second, this study

involves anxiety, which is generally defined as “fear or dread of a future event that the individual perceives to be dangerous, overwhelming, or unmanageable” (Husain & Kashani, 1992). Lastly, this study defines “extracurricular involvement” as engagement in any activities outside of academics. Academics would include activities such as attending classes, doing homework, and studying for an exam. Much of the existing literature regarding extracurricular involvement uses early adolescent or high school samples. The current study seeks to study involvement using a sample of college undergraduates.

Anxiety and Suicidality

Most of the literature involving the relationship between anxiety and suicidal ideation has yielded similar results. Sareen et al. (2005) conducted a longitudinal study with an adult sample to examine the association between anxiety and suicidal behaviors. In this study, results indicated that anxiety was linked with higher suicidal ideation. Bolton et al. (2008) found similar results using a sample of both institutionalized and community-living adults. An additional study examined individuals who had reported a history of suicide attempt. Of these individuals, 70 percent had some type of anxiety disorder. Furthermore, the presence of an anxiety disorder was significantly associated with suicide behavior (Nepon, Belik, Bolton, & Sareen, 2010).

Because anxiety disorders are often present alongside other disorders such as depression (Mineka, Watson, & Clark, 1998), bipolar disorder (Boylan et al., 2004), and schizophrenia (Cosoff & Hafner, 1998), it is important to note that the aforementioned studies controlled for comorbidity. Therefore, these studies were able to conclude that anxiety does function independently as a predictor of suicidal ideation.

Extracurricular Involvement and Anxiety

When examining previous research, results regarding the relationship between extracurricular involvement and anxiety are mixed. Melman, Little, and Akin-Little (2007) found that high school students who were more involved in extracurricular activities exhibited greater levels of anxiety than students who were less involved. Results from this study led to the development of the “over-scheduling hypothesis,” which claims that students who are more involved are more likely to over-schedule themselves due to pressure from outside sources. Over-scheduling may contribute to poor psychological adjustment, which includes higher levels of anxiety (Mahoney, Harris, & Eccles, 2006).

Contrary to the over-scheduling hypothesis, some studies have shown that involvement in extracurricular activities is associated with more positive psychological adjustment, which includes lower levels of anxiety (Mahoney, Vandell, Simpkins, & Zarrett, 2009; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006). Despite these results, there is some evidence to suggest that psychological adjustment may be dependent upon the type of activity or activities students are involved in. For example, a study conducted by Barber, Eccles, and Stone (2001) found that the type of extracurricular activity is related to outcome in terms of substance use, academic achievement, and psychological adjustment.

In terms of the relationship between extracurricular involvement and anxiety, a large body of previous research has focused on participation in sports and other physical activities. Similar to general research regarding involvement and anxiety, results within these sports-specific studies vary. In a sample of Greek high school students, Lazaratou et

al. (2013) found that greater involvement was associated with less anxiety. In this study, most of the extracurricular activities endorsed by students involved some type of physical activity. When examining the relationship between sports involvement and anxiety levels, Fauth, Roth, and Brooks-Gunn (2007) found that those students involved in sports activities had lower anxiety levels. While both of these studies demonstrate a link between involvement in physical extracurricular activities and lower anxiety levels, there are studies that demonstrate a link between physical extracurricular activities and higher anxiety levels (Scanlan, Babkes, & Scanlan, 2005; Smoll & Smith, 1996). Thus far, research on extracurricular involvement and anxiety have produced inconsistent findings. Such inconsistencies indicate a need for more research into the relationship between these two variables. Not only does the current study attempt to address this inconsistency, but it also seeks to be one of the few studies that examines these variables in a college sample.

Extracurricular Involvement and Suicidal Ideation

Unlike research involving extracurricular involvement and anxiety, most of the previous research on the relationship between involvement and suicidal ideation is consistent. In a study on suicidal ideation among college students, Van Orden et al. (2008) suggested that extracurricular involvement may serve as a protective factor against suicidal ideation. Empirical findings from other studies support this idea. Armstrong and Manion (2006; 2015) conducted two separate studies to demonstrate this relationship. In one study, Armstrong and Manion (2006) found that more extracurricular involvement did serve as a protective factor against suicidal ideation among young males living in rural communities. In another study, Armstrong and Manion (2015) found the same results in a sample of high school students living in various settings. Using both

middle and high school samples, Mata et al. (2012) found that extracurricular involvement is associated with less overall suicidality through belongingness, a construct that will also be included in the current study. Lastly, Mazza and Eggert (2001) found that adolescents who do not participate in extracurricular activities are at a higher risk for suicide attempts.

Similar to research involving extracurricular involvement and anxiety, some research has focused specifically on sports participation. Results from these studies are consistent. Taliaferro et al. (2010) found that sports participation is associated with less suicidal ideation through various mediating factors such as vigorous physical activity and social support. In a separate study with adolescents, Harrison and Narayan (2003) also found that sports participation was linked to less suicidal behavior.

Only one particular study seemed to show inconclusive results regarding extracurricular activity and overall suicidality. Neumark-Sztainer, Story, French, and Resnick (1997) found no correlation between involvement and health compromising behaviors such as suicide attempt. Given that suicide attempt was examined in the study and suicidal ideation was not, it cannot be concluded that these results apply to suicidal ideation. In addition, an important limitation may provide insight as to why the study produced nonsignificant results. According to the authors, involvement was measured by including a broad range of activities under one category. Therefore, participants were either classified as “involved” or “not involved.” Although data from this study may have been skewed, the study’s results must still be considered as an exception to the rest of the existing literature.

Belongingness and Burdensomeness

There are two potentially contributing factors to consider in terms of the relationships between extracurricular involvement, anxiety, and suicidal ideation. Both are found within the Interpersonal Theory of Suicidal Behavior (Joiner, 2005). This theory asserts that two constructs, thwarted belongingness and perceived burdensomeness, must be present in an individual before he or she will form a desire to die by suicide (Van Orden et al., 2010). According to Van Orden et al. (2008), thwarted belongingness is a powerful predictor of suicidal behavior. In this study, it is suggested that belongingness is essential to life satisfaction. When belongingness is thwarted, individuals will feel less satisfied with their lives. This idea is supported by past research, which indicates that belongingness is highly predictive of a positive outcome during adolescence and young adulthood (Csikszentmihalyi & Larson, 1984; Michaelson & Nakamura, 2001). Past research also suggests that extracurricular activities (both school and community activities) can foster belongingness, and are thus essential to youth's emotional well-being (Eccles, Lord, & Roeser, 1996). The construct of belongingness has been studied primarily among adults or adolescents. The current research will attempt to study belongingness among a sample of college students.

Alongside thwarted belongingness is perceived burdensomeness, another component that is highly predictive of suicidal behavior (Joiner, Pettit, Walker, & Voelz, 2002). Perceived burdensomeness is defined as the feeling that one is becoming a burden to his or her loved ones (Van Orden, Lynam, Hollar, & Joiner, 2006). Virtually no research exists on the relationship between extracurricular involvement and burdensomeness, making the current study one of the first to explore this topic.

Implicit Suicidal Ideation

A majority of past research in the area of suicidality has relied on self-report measures in order to obtain data. This method has the potential to be problematic, especially when studying a sensitive topic such as suicide. When using self-report, there is concern over whether participants offer accurate data without apprehension. In order to combat some of the concern over explicit measures, the Implicit Association Task (IAT) was developed. The IAT's purpose is to reveal any implicit bias or preference toward one of two target concepts (Greenwald, McGhee, & Schwartz, 1998). When completing this computerized task, participants are shown certain words that are biased in one direction or another based on the topic being studied. Participants must then press a key that corresponds with their association to each word shown. The IAT is particularly beneficial because it provides information on biases that may not necessarily be displayed on self-report measures. The IAT has demonstrated validity when measuring implicit attitudes toward a variety of concepts such as homosexuality (Banse, Seise, & Zerbes, 2001; Jonathan, 2008; Rowatt et al., 2006); race (Greenwald et al., 2002; McConnell & Leibold, 2001); and self-injury (Nock & Banaji, 2007; Nock, 2009). The death/suicide version of the IAT (d/s IAT) has also shown consistency when studying individuals' implicit perceptions toward suicidal behavior (Nock & Banaji, 2007; Nock et al., 2010). In one study, for example, participants' implicit self-depressive associations were significantly correlated with suicidal ideation (Glashouwer et al., 2010). Similarly, another study found that the d/s IAT predicted 5 out of 6 indicators of suicide risk more effectively than items within self-report measures (Harrison, Stritzke, Fay, Ellison, & Hudaib, 2014).

Rationale and Hypotheses

Research on the relationships between extracurricular involvement, anxiety, and suicidal ideation is scarce. Moreover, the research that does exist on these relationships is often inconsistent. The current study seeks to address the ways in which these factors interact with one another. In terms of the relationship between extracurricular involvement and anxiety, past research has shown mixed results. Therefore, one aim of the current study is to determine whether extracurricular activity contributes to or weakens symptoms of anxiety in college students. First, using the “over-scheduling hypothesis (Melman, Little, & Akin-Little, 2007)” as a basis, it is hypothesized that higher levels of extracurricular involvement will be associated with higher levels of anxiety. Second, prior research indicates a strong link between anxiety and suicidal ideation (Bolton et al., 2008; Nepon, Belik, Bolton, & Sareen, 2010; Sareen et al., 2005); therefore, it is hypothesized that anxiety will serve as a mediating factor between extracurricular involvement and explicit suicidal ideation. Third, anxiety is also expected to serve as a mediating factor between involvement and implicit suicidal ideation. Fourth, because thwarted belongingness seems to play a key role in predicting suicidal ideation (Van Orden et al., 2008), it is expected that the construct of thwarted belongingness will be a more accurate predictor of suicidal ideation than the construct of perceived burdensomeness.

Method

Participants

The sample for this study included 80 college undergraduate students (69.7% freshman, 75.3% female, 76.5% white, and 92.6% heterosexual). The mean age was 19.11 ($SD = 2.06$). Of the remaining non-white participants, 13.6% were African American, 3.7% were Asian, 3.7% were multi-ethnic, 1.2% were Hispanic, and 1.2% identified as “other.” These individuals volunteered to participate in exchange for research credits in introductory psychology courses. All participants were from a public university in the south-central region of the United States.

Procedure

Before beginning data collection, this study received full approval from the Institutional Review Board (IRB) at Western Kentucky University. Because participation was voluntary, individuals scheduled a time to complete the study through an online Study Board program. Students were asked to report to the research lab at their chosen time. The maximum sign-up capacity was five. Before beginning, participants were asked to read and sign an informed consent form that outlined the nature of the study. Participants were given a packet of self-report questionnaires including a basic demographics section, a questionnaire assessing participation in extracurricular activities,

the Interpersonal Needs Questionnaire (INQ; Van Orden, 2009), the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), the Zung Self-Rating Anxiety Scale (SAS; Zung, 1971), and the Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991). In addition to the paper measures listed, students were also asked to complete a computerized death/suicide version of the Implicit Association Task (IAT; Nock et al., 2010) on a laptop computer. Neither the paper measures nor the IAT contained names or any other identifying information. Instead, all measures were coded with unique identification numbers in case future reference was necessary. Upon completion of the research protocol, participants' paper measures were screened for possible suicide risk. Risk level was determined based on pre-selected critical items located within the Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991). At-risk participants were given individual consultation by a trained graduate student and referrals to additional services were made as needed. At the conclusion of the study, each individual was debriefed and was given a small monetary reward of \$5 for his or her participation. Consent forms were stored separately from students' raw data to maintain confidentiality. All information was stored securely in a locked file cabinet.

Measures

Demographics. Participants completed a brief questionnaire that asked for basic demographical information. This included factors such as age, grade level, gender, race/ethnicity, sexual orientation, and religious affiliation.

Involvement. Students completed a self-report questionnaire that assessed their levels of involvement in both on- and off-campus extracurricular activities. First, this questionnaire asked participants about factors such as living arrangements, employment,

and time commitment to academic endeavors. Second, the questionnaire asked participants whether or not they participated in more specific on-campus extracurricular activities (e.g., campus ministries, service organizations, student government, and intramurals). Third, students were asked to estimate the number of hours per week they spend participating in extracurricular activities both on- and off-campus. Lastly, participants were asked to rate their feelings of belongingness on a scale of 1 to 10, with 1 being lowest and 10 being highest. For this particular study, the two items indicating hours spent per week on extracurricular activities were summed for a total score of involvement hours.

Interpersonal Needs. The Interpersonal Needs Questionnaire (INQ; Van Orden, Cukrowicz, Witte, & Joiner, 2012) was used to assess the constructs of belongingness and burdensomeness, which are key components of interpersonal needs. The INQ is a self-report survey that measures the level of one's connectedness to his or her social surroundings. A shortened 18-item version of the INQ was used for this particular study. The INQ-18 includes two subscales: thwarted belongingness and perceived burdensomeness. The thwarted belongingness subscale includes 9 items such as "These days I am fortunate to have many caring and supportive friends" and "These days I often feel like an outsider in social gatherings." The perceived burdensomeness subscale includes 9 items such as "These days the people in my life would be happier without me" and "These days I think I contribute to the well-being of the people in my life." The INQ-18 asks participants to rate these items based on how true they feel each statement is for them recently. Responses range from 1 (*not at all true for me*) to 7 (*very true for me*) on a 7-point Likert-scale. The INQ-18 is scored in a way that higher numerical scores suggest

higher levels of both thwarted belongingness and perceived burdensomeness; therefore, lower scores indicate more positive feelings of social connectedness. Prior research has successfully demonstrated the INQ's reliability as a means of measuring thwarted belongingness ($\alpha = .85$) and perceived burdensomeness ($\alpha = .89$; Van Orden et al., 2008). In the current study, internal consistency was also high for both thwarted belongingness ($\alpha = .90$) and perceived burdensomeness ($\alpha = .85$).

Depression. The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used to measure the degree to which participants exhibit symptoms of depression. The CES-D is a 20-item self-report measure that asks participants to rate on a 4-point Likert-scale how often they have felt certain depression-related symptoms within the week prior. Responses range from 1 (*rarely or none of the time*) to 4 (*most or all of the time*). The CES-D includes positive items such as "I felt I was just as good as other people" and "I enjoyed life"; however, the CES-D also includes negative items such as "I felt depressed" and "I could not get 'going.'" The CES-D scale includes both positively- and negatively- worded items to prevent response bias and to identify inconsistencies within responses. After all items are coded and summed, CES-D total scores range from 0 to 60, with higher scores indicating higher depressive symptomology. The CES-D demonstrates reliability in both the general population (split half = .85) as well as a clinical sample population (split half = .90; Nunnally, 1967). High internal consistency was also found in the current study ($\alpha = .89$).

Anxiety. The Zung Self-Rating Anxiety Scale (Z-SAS; Zung, 1971) was used to measure participants' anxiety levels. The Z-SAS is a 20-item self-report measure that asks participants to rate how often they have felt certain anxiety-related symptoms within

the week prior. Responses range from 1 (*none or a little of the time*) to 4 (*most or all of the time*) on a 4-point Likert-scale. The Z-SAS includes positive items such as “I feel calm and can sit still easily” and “I fall asleep easily and get a good night’s rest.” Conversely, the Z-SAS includes negative items such as “I feel afraid for no reason at all” and “My arms and legs shake and tremble.” Much like the CES-D scale, the Z-SAS scale includes both positively- and negatively- worded items to avoid inconsistency of results. Upon completion of the Z-SAS, items are summed for a total score ranging from 20 to 80, with higher scores suggesting higher anxiety symptomology. According to Jegede (1977), the Z-SAS demonstrates reliability in both normal samples ($\alpha = .69$) and outpatient samples ($\alpha = .81$). In the current study, the Z-SAS also demonstrates high internal consistency ($\alpha = .92$).

Suicidal Ideation (explicit). The Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991) is a 25-item self-report measure used to measure participants’ explicit suicidal ideation. When completing the ASIQ, participants are presented with general statements about life. Such statements include “I thought about how easy it would be to end it all” and “I thought that no one cared if I lived or died.” For each statement, participants are asked to rate how often they have experienced that thought within the month prior. Responses range from A (*almost every day*) to G (*I never had this thought*) on a 7-point Likert-scale. ASIQ items are summed and total scores range from 0 to 150, with higher scores indicating severe, frequent suicidal cognitions. The ASIQ includes 6 critical items which are used to identify individuals who are at an elevated suicide risk. Such items include “I thought about how I would kill myself” and “I thought that if I had the chance I would kill myself.” If an individual’s score on 2 or more of these items

indicates that he or she has had this thought a couple of times a week or more, then the individual is considered at a critical level of suicide risk. In prior research, Reynolds et al. (1990) found the ASIQ to be highly reliable ($\alpha = .97$) among a combined sample of psychiatric and non-psychiatric adults. High reliability was also found in the current study ($\alpha = .98$).

Suicidal Ideation (implicit). Finally, participants completed the death/suicide version of the Implicit Association Task (d/s IAT; Nock et al., 2010), which is a computerized measure of one's automatic responses to both life- and death-related stimuli. The task begins by presenting individuals with words that are associated with "life" (i.e., *alive, thrive, and breathing*) or "death" (i.e., *die, lifeless, and suicide*). As each word is presented, participants must press a key that corresponds with a word representing "me" (i.e., *I, myself, and mine*) or "not me" (i.e., *they, theirs, and other*). Response latency is used to calculate one's implicit ideation or "death/suicide" (d/s) score, which will either be positive or negative. While more positive d/s scores indicate a stronger association between death and self, more negative d/s scores indicate a stronger association between life and self. In the past, d/s IAT has demonstrated predictive abilities for future suicidal ideation (Nock et al., 2010; Nock & Banaji, 2007; Price, Nock, Charney, & Mathew, 2009).

Results

Data analysis involved examining basic correlational data in order to note any associations between extracurricular involvement, anxiety, belongingness, burdensomeness, and both forms of suicidal ideation. Total scores for extracurricular involvement were calculated by summing total hours spent per week on both on- and off-campus extracurricular activities. Total scores for anxiety were calculated based on participants' responses to the Z-SAS. To control for depression as a predictive factor alongside anxiety, a total score for depressive symptomology was included via participants' responses to the CES-D. Scores from the INQ-18 were broken down into the two subscales, thwarted belongingness and perceived burdensomeness. Finally, each participant had a total score for explicit suicidal ideation (ASIQ) and for implicit suicidal ideation (d/s IAT). Results of these analyses indicated that several significant relationships were present. Anxiety was significantly correlated with extracurricular involvement, explicit suicidal ideation, and perceived burdensomeness. Both extracurricular involvement and explicit suicidal ideation were associated with perceived burdensomeness. While the Implicit Association Task was not significantly correlated with any other variables, it approached significance with extracurricular involvement ($r = .23, p = .06$). These correlational data provided a solid basis before proceeding with mediation analyses (see Table 1).

Hypothesis One: Involvement and Anxiety

Contrary to the hypothesis, results from this study indicated that extracurricular involvement was negatively associated with anxiety ($r = -.42, p < .001$). This means that as extracurricular involvement increased, anxiety levels decreased.

Hypothesis Two: Involvement, Anxiety, and Explicit Suicidal Ideation

The second hypothesis was tested using the Process Procedure for SPSS (Hayes, 2013). This boot-strap mediation model examined the relationships between extracurricular involvement, anxiety, and explicit suicidal ideation. Scores for extracurricular involvement were calculated by summing total hours spent per week on both on- and off-campus extracurricular activities. Total scores were used in the analysis for both anxiety (Z-SAS) and explicit suicidal ideation (ASIQ). The scores for extracurricular involvement and anxiety were entered as predictors of explicit suicidal ideation. Results of these analyses indicated that anxiety was significantly related to ASIQ scores ($\beta = 1.28, p < .001$). Increased involvement in activities was significantly related to decreased anxiety ($\beta = -3.5, p < .01$), but was indirectly related to explicit suicidal ideation through anxiety as predicted ($R^2 = .43, F(2, 77) = 29.01, p < .001$). The indirect effect for anxiety as a mediator was -4.49 and the confidence interval did not include zero [CI: -8.61, -1.79], providing evidence for significant mediation (see Figure 1).

Hypothesis Three: Involvement, Anxiety, and Implicit Suicidal Ideation

The third hypothesis was also tested using the Process Procedure for SPSS (Hayes, 2013). This boot-strap mediation model examined the relationships between extracurricular involvement, anxiety, and implicit suicidal ideation. Scores for both

extracurricular involvement and anxiety were generated using the same calculations as the previous model. Also identical to the previous model, scores for extracurricular involvement and anxiety were entered as predictor variables. Using total d/s IAT scores as the outcome variable, results of these analyses indicated that the overall mediation model was not significant ($R^2 = .055$, $F(2, 65) = 1.89$, $p = .158$). The indirect effect for anxiety as a mediator was $-.006$ and the confidence interval included zero [CI: $-.038$, $.021$], providing additional evidence that mediation was not present (See Figure 2).

Hypothesis Four: Belongingness and Burdensomeness

Contrary to the hypothesis, results from this study indicated that belongingness was not significantly associated with extracurricular involvement ($r = -.07$, $p = .54$), anxiety ($r = .03$, $p = .82$), explicit suicidal ideation ($r = .07$, $p = .53$), or implicit suicidal ideation ($r = .05$, $p = .66$). Although there were no significant relationships between belongingness and these variables, burdensomeness was significantly associated with extracurricular involvement ($r = -.24$, $p < .05$), anxiety ($r = .56$, $p < .001$), and explicit suicidal ideation ($r = .69$, $p < .001$).

Given the significance between burdensomeness and these variables, an additional analysis was performed to test burdensomeness as a mediator between involvement and explicit suicidal ideation. The Process Procedure for SPSS (Hayes, 2013) was used to generate this boot-strap mediation model. Scores for both extracurricular involvement and explicit suicidal ideation were generated using the same calculations as the two previous mediation models. In this model, total scores for perceived burdensomeness were calculated based on participants' responses to questions on the INQ-18. In this model, total scores for extracurricular involvement and perceived burdensomeness were

entered as predictor variables. Results of these analyses indicated that burdensomeness was significantly related to ASIQ scores ($\beta = 16.97, p < .001$). Increased involvement in activities was significantly related to decreased perceived burdensomeness ($\beta = -.15, p < .05$), but was indirectly related to explicit suicidal ideation through burdensomeness ($R^2 = .486, F(2, 76) = 35.99, p < .001$). The indirect effect for burdensomeness as a mediator was -2.56 and the confidence interval did not include zero [CI: $-6.35, -0.59$], providing evidence for significant mediation (see Figure 3).

Discussion

Hypothesis One: Involvement and Anxiety

Before conducting the study, it was hypothesized that increased involvement in both on- and off-campus extracurricular activities would be positively associated with symptoms of anxiety. This prediction was based on research supporting the “over-scheduling hypothesis,” which states that pressure from outside sources may make students more likely to over-schedule themselves. These students may, consequently, experience higher levels of anxiety (Mahoney, Harris, & Eccles, 2006). Because college students often experience intense pressure to succeed, it was expected that the over-scheduling hypothesis may serve as a solid basis for the current study.

The first hypothesis was not supported. In fact, results indicated that extracurricular involvement was significantly correlated with lower levels of anxiety among the current sample of college students. These results provide evidence contradicting the “over-scheduling hypothesis,” while supporting the idea of a positive association between involvement and anxiety (Fauth, Roth, & Brooks-Gunn, 2007; Lazaratou et al., 2013; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006).

The positive relationship between involvement and anxiety may exist, in part, due to the concept of belongingness. For example, students who are more involved in extracurricular activities may feel higher levels of connectedness to their peers, their

schools, and their communities. Past research has supported the idea that belongingness is closely linked with more positive psychological functioning, which includes fewer symptoms of anxiety (Hagerty, Williams, Coyne, & Early, 1996; Levett-Jones & Lathlean, 2009; Davidson et al., 2011). Although the idea of belongingness as a protective factor against anxiety is well supported in the literature, the role belongingness plays in the relationship between extracurricular involvement and anxiety needs to be further explored.

Hypothesis Two: Involvement, Anxiety, and Explicit Suicidal Ideation

The current study hypothesized that not only would anxiety be related to both extracurricular involvement and explicit suicidal ideation, but that anxiety would serve as a mediator between the two variables. Results fully supported this hypothesis. This study found that as extracurricular involvement increased, anxiety levels decreased. As anxiety levels decreased, explicit suicidal ideation decreased as well. This mediation model coincides with much of the existing literature concerning involvement, anxiety, and suicidal ideation. Past research supports a negative association between extracurricular involvement and anxiety (Hagerty, Williams, Coyne, & Early, 1996; Levett-Jones & Lathlean, 2009; Davidson et al., 2011). In addition, research prior to this study has demonstrated that higher levels of anxiety are significantly related to higher levels of suicidal behavior (Sareen et al., 2005; Bolton et al., 2008; Nepon, Belik, Bolton, & Sareen, 2010).

Hypothesis Three: Involvement, Anxiety, and Implicit Suicidal Ideation

The current study hypothesized that anxiety would serve as a mediator between extracurricular involvement and implicit suicidal ideation. Results from the study did not

support this hypothesis. No mediating relationships were found when using implicit suicidal ideation as an outcome variable.

These findings offer an important point for consideration. It is worth noting that there was a significant mediation when testing the same model with explicit suicidal ideation. Given that prior research has validated the Implicit Association Task (Nock & Banaji, 2007; Nock et al., 2010), it was expected that the d/s IAT would yield results similar to that of the explicit measure. Our results demonstrated the opposite, as the IAT and ASIQ scores were not significantly correlated. When examining IAT results, most participants scored in the direction of “life-oriented.” Therefore, IAT scores offered less variability than ASIQ scores in terms of suicidal ideation.

These findings make the current study one of the first to challenge the IAT’s reliability as a comparable measure of suicidal ideation. Future research should continue to examine how results from explicit, self-report measures of suicidal ideation compare to results from the death/suicide Implicit Association Task.

Hypothesis Four: Belongingness and Burdensomeness

Lastly, it was hypothesized that thwarted belongingness would be a more accurate predictor of suicidal ideation than perceived burdensomeness. This hypothesis was not supported in that thwarted belongingness was not associated with extracurricular involvement, anxiety, implicit suicidal ideation, or explicit suicidal ideation. Instead, perceived burdensomeness was significantly related to involvement, anxiety, and explicit suicidal ideation. Not only was perceived burdensomeness associated with these variables, but it served as a mediator between extracurricular involvement and explicit suicidal ideation.

These findings suggest that perceived burdensomeness may be a more accurate predictor than belongingness when examining extracurricular involvement and explicit suicidal ideation. The literature defines burdensomeness as “the feeling that one is becoming a burden to his or her loved ones” (Van Orden, Lynam, Hollar, & Joiner, 2006, p. 457). With this definition in mind, participation in extracurricular activities may allow students the opportunity to feel they are contributing to society and to the well-being of others. Thus, thoughts about becoming a burden to others may not occur as frequently in students who are involved as they would occur in students who are less engaged in extracurricular activities.

While burdensomeness is supported in terms of its association with suicidal ideation (Joiner, Pettit, Walker, & Voelz, 2002), little to no research exists on burdensomeness as it relates to extracurricular involvement. Further research needs to take place on the relationships between extracurricular involvement, burdensomeness, and suicidal ideation.

Limitations

The current study has several limitations. First, the sample of participants was mostly homogeneous in terms of race (76.5% white), gender (75.3% female), and sexual orientation (92.6% heterosexual). This sample may have offered limited variability when examining variables such as college participation, anxiety levels, and suicidal ideation. Future research should attempt to study relationships between these factors using a more diverse sample.

Second, participants’ extracurricular involvement scores may have been skewed. When looking at the sample, a majority of participants (67.9%) were freshmen in college.

Because freshmen may not yet be involved in many extracurricular activities, the scores for this variable may have been lower in comparison to the entire college student population. On the other hand, freshmen may have a tendency to overcommit to a variety of extracurricular activities. In this case, involvement scores may have been higher in comparison to the entire college student population

In addition to a primarily freshman sample, the means by which extracurricular involvement scores were calculated could be considered a flaw. Involvement scores were calculated by summing the number of hours per week spent on on-campus activities and the number of hours per week spent on off-campus activities. Relying on students to self-report the number of hours spent on extracurricular activities is a limitation because students may be unsure or students' involvement hours may vary each week.

Finally, there were limitations when administering the Implicit Association Task to participants. During the study, students were required to complete the d/s IAT in a room with the other participants. Because others were present, students may not have answered as quickly or as accurately as they could have in a quiet, distraction-free room. This limitation could play a role in the outcome of the IAT and should be taken into consideration when examining the results of this study.

Conclusion

The primary aim of this study was to better understand how extracurricular involvement can either contribute to or weaken suicidal cognitions among college students. After examining relationships between involvement, anxiety, and various components of suicidal ideation, results suggested that extracurricular activity can indirectly affect suicidal ideation through variables such as anxiety or perceived

burdensomeness. These results highlight potential risk factors for and protective factors against the development of suicidal ideation; therefore, the current study may offer valuable insight on how to prevent and treat suicidal behavior.

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Table 1

Subscale, Cronbach's alpha values, descriptive statistics and zero-order correlations between extracurricular involvement, depression, anxiety, suicidal ideation, burdensomeness, and belongingness

Scale	α	M	SD	1	2	3	4	5	6	7
1 Implicit	-	-.56	.27	-						
2 Depression		19.72	8.78	.08	-					
3 Anxiety		35.14	11.36	-.04	.70**	-				
4 Explicit		10.62	20.67	.08	.62**	.62**	-			
5 Involvement	-	2.98	1.36	.23	-.27*	-.43**	-.20	-		
6 Burden		2.37	.84	.07	.79**	.56**	.69**	-.24*	-	
7 Belong		4.11	1.36	.05	.34**	.03	.07	-.07	.47**	-

Note: Implicit refers to the death/suicide IAT. Depression refers to the Center for Epidemiologic Studies Depression Scale (CES-D). Anxiety refers to the Zung Self-Rating Anxiety Scale (SAS). Explicit refers to the Adult Suicidal Ideation Questionnaire (ASIQ). Involvement refers to total hours of participation in extracurricular activities. Burden and Belong refer to perceived burdensomeness and thwarted belongingness, two subscales measured in the Interpersonal Needs Questionnaire (INQ).

*. $p < .05$

**. $p < .01$

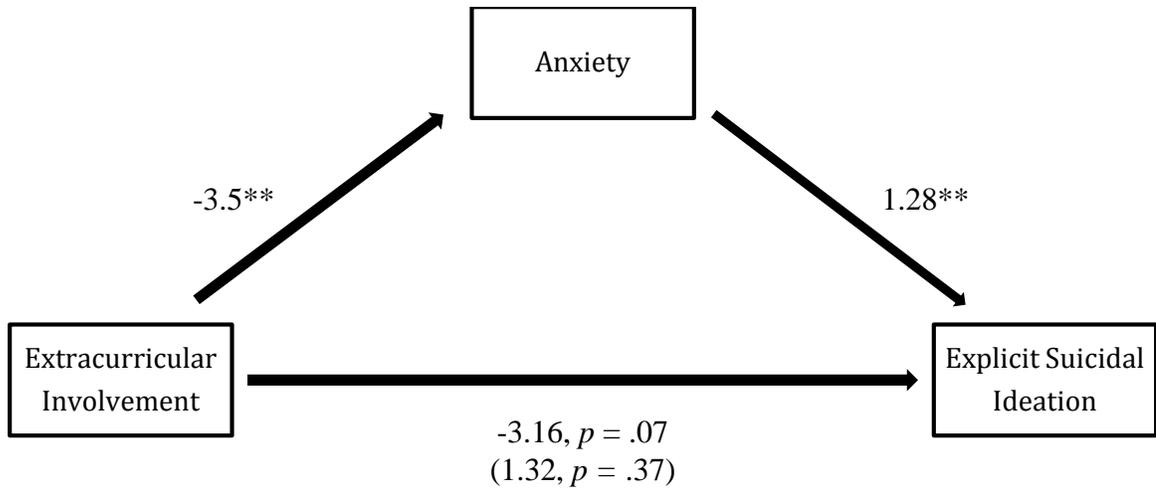


Figure 1. Anxiety as a mediator between Extracurricular Involvement and Explicit Suicidal Ideation.

** $p < .001$

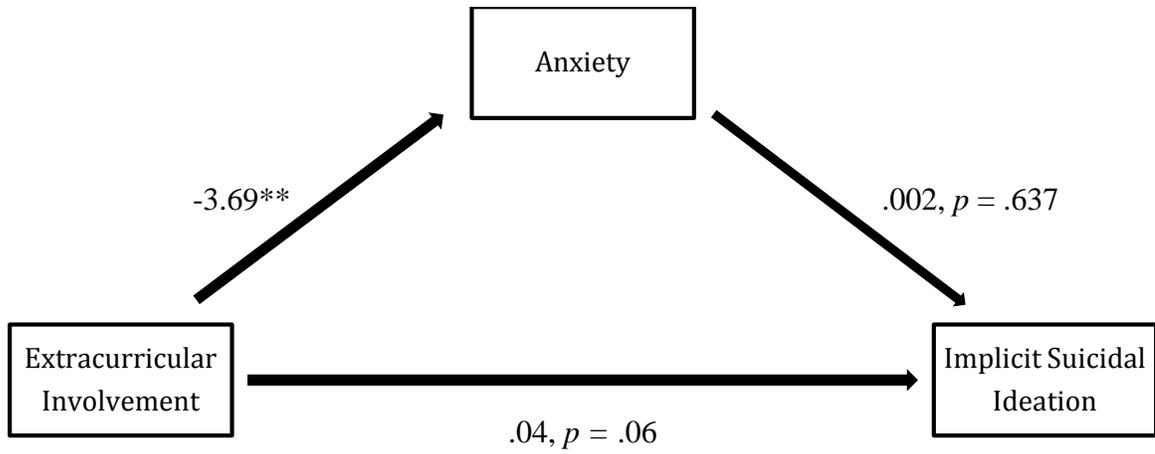


Figure 2. Anxiety as a mediator between Extracurricular Involvement and Implicit Suicidal Ideation.

** $p < .001$

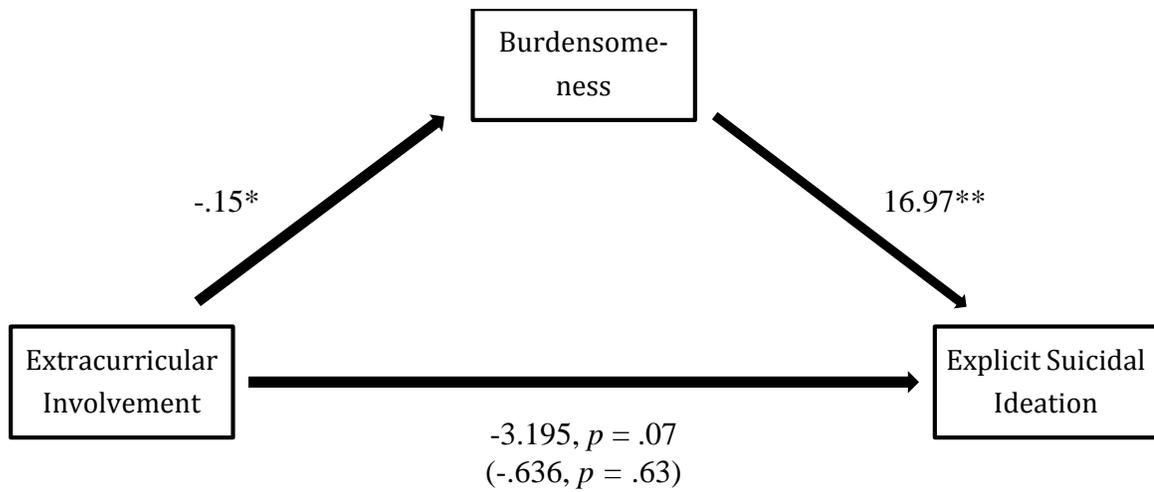


Figure 3. Burdensomeness as a mediator between Extracurricular Involvement and Explicit Suicidal Ideation.

$^{**}p < .001$

$^*p < .05$