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Examining Risk Factors for Anxiety and Negative College Adjustment in First-Year College Students

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EXAMINING RISK FACTORS FOR ANXIETY AND NEGATIVE COLLEGE ADJUSTMENT IN FIRST-YEAR COLLEGE STUDENTS

by

Blake Termini

A thesis submitted in partial fulfillment of the requirements
for graduation with Honors in the Psychology

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Michael O'Hara
Thesis Mentor

Spring 2018

All requirements for graduation with Honors in the
Psychology have been completed.

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J. Toby Mordkoff
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Students

Blake M. Termini

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Abstract

College is a major transitional period for young adults as they move off into the world on their

own and mental health problems are increasing within this population. The present study

examined distance from students' hometown to campus, the number of times students visit

campus prior to starting classes, and the level of social and academic pressure students perceive

as potential risk factors for risky drinking behaviors, anxiety, and negative college adjustment in

a sample of first-year college students. Distance from students' hometown to campus was also

examined as a risk factor for hazardous drinking behaviors. Participants ($N = 108$) took part in a

longitudinal study, completing a battery of measures as part of an online survey, at three time

points throughout their first semester at college. Among other results, a one-way analysis of

covariance revealed distance from hometown as a risk factor for risky drinking behaviors and the

number of times students visited campus was found to be a risk factor for social anxiety

symptoms. Perceived social pressure was identified as a risk factor negative college adjustment,

social anxiety, and anxious mood symptoms, while perceived academic pressure was a risk

factor for negative college adjustment and anxious mood symptoms. Risky drinking behavior

was also found to be a risk factor for negative college adjustment. Implications for interventions

and public education about risk factors for anxiety and negative college adjustment that future

college students may face are discussed.

Keywords: distance from home, number of campus visits, risky drinking, social and

academic pressure, anxiety symptoms, negative college adjustment

Examining Risk Factors for Anxiety and Negative College Adjustment in First-Year College

Students

20.4 million people were projected to attend postsecondary schools in 2017, and in doing

so, experienced the life changes associated with the transition to college (National Center for

Education Statistics, 2017). In light of this, it is important to consider the mental health of this

population that is only expected to increase each year moving forward. Compared to the general

population, for people between the ages of 18-29 the lifetime prevalence of any anxiety disorder

is 30.2% (Kessler et al., 2005). College students fall within this age group, and mental health

problems are increasing within this population (Gallagher, 2008). Within this age range, the

prevalence of generalized anxiety disorder, social phobia, and panic disorder are 4.1%, 13.6%,

and 4.4% respectively (Kessler et al., 2005). While research is lacking with regards to specific

risk factors for college students, important factors have been identified for the general population

as being associated with higher prevalence of anxiety disorders. These include being female,

single versus married, and having low income among others (Michael, Zetsche, & Margraf,

2007).

There has been substantial research on mental health problems facing college students

and related risk factors, but many have been on depression and suicidality rather than anxiety

(Eisenberg, Gollust, Golberstein, & Hefner, 2007). Of the research that has been done with

college students and anxiety, there has been little about where college-related anxiety and stress

stems from or the specific risk factors that may predispose college students to develop higher

levels of anxiety, particularly risk factors unique to the college experience such as academic

workload and college major (Pedersen, Swenberger, & Moes, 2016; Hunt & Eisenberg, 2010).

The few studies that have examined risk factors for anxiety in college students have not

examined many different factors (Eisenberg et al., 2007; Roberts, Golding, Towell, & Weinreb, 1999). Risk factors that have been examined include family socioeconomic status, relationship status, alcohol consumption, social support, and financial struggles. Students who grow up in a poor family or who report current financial struggles are more likely to screen positive for anxiety disorders (Eisenberg et al., 2007). In the same study, students who were married or in a domestic partnership reported fewer mental health problems than those who were single. While there is a negative correlation between social anxiety and alcohol consumption in college students, there is a positive association between social anxiety and alcohol-related problems (Schry & White, 2013). The relationship between problem drinking and social anxiety depends greatly on the context in which the drinking is taking place and the person's drinking motives such as a desire to "fit in" or to increase their positive mood (Terlecki, Ecker, & Buckner, 2014; Villarosa, Madson, Ziegler-Hill, Noble, & Mohn, 2014). In light of this, the present study examined drinking habits as well as perceived social pressure.

In addition to anxiety, college adjustment is also an important factor to consider in this area. College adjustment refers to how college students generally cope with the stress that accompanies the transition to college (LaBrie, Ehret, Hummer, & Prenovost, 2012). A meta-analysis examining correlates of college adjustment demonstrated that college adjustment is predictive of both academic achievement in college as well as college retention. In the same meta-analysis, there was little correlation between demographic characteristics and college adjustment. Much of the previous research regarding college adjustment has focused on personality traits, previous academic achievement, and demographic characteristics such as race and socioeconomic status (Credé & Niehorster, 2012). But there has been little investigation into potential risk factors that may lead college students to adjust to college more negatively.

Previous studies, for the most part, have not gone beyond these factors when examining anxiety levels in college students. Additionally, all of these studies have been cross-sectional. Longitudinal research is needed to determine if anxiety levels and negative adjustment are still high at the end of the semester as different college-related stressors may change throughout a semester. Due to this lack of longitudinal research, previous studies have been unable to determine whether certain risk factors can persist in their effects on anxiety and negative college adjustment. Addressing potential predictive risk factors for college students developing higher levels anxiety and negative college adjustment is of great importance. Findings in this area can provide important information useful for forming mental health care programs on college campuses as well as improving students' mental health outcomes and increasing awareness of what students may face as they go into college.

The present study had two purposes. The first was to examine potential college-specific risk factors for anxiety and negative college adjustment in a sample of first-year college students. The second purpose of the present study was to follow students longitudinally to provide insight into how certain risk factors impact anxiety and negative college adjustment at the end of students' first semester at college. Unlike previous studies which have addressed anxiety in college students through cross-sectional designs, this study did so through a longitudinal design over the course of a semester.

There were five main hypotheses for this study. There has been no investigation into the role that distance from hometown to campus and the number of times that students visit campus, or social and academic pressures play in negative college adjustment and anxiety symptoms in college adjustment. However, it seems very plausible that students who attend college far from their hometown would have more anxiety symptoms and negative college adjustment because of

being thrust into a new environment and having less of a support system than they would if they attended college closer to their family. In light of this, we hypothesize that students whose hometown is farther from campus will exhibit higher levels of risky drinking and more symptoms of anxiety and negative college adjustment towards the end of their first semester than those whose hometown is closer to campus. Additionally, campus visits are not only used by prospective students to get a feel for whether they will enjoy attending the college, but also serve as a way to become more acclimated and familiar with different aspects of the campus such as the facilities, what the school has to offer, and if the individual feels like they will be a good fit. Therefore, our second hypothesis is that students who visit campus fewer times prior to classes beginning will exhibit more anxiety symptoms and negative college adjustment towards the end of their first semester than those who visit campus more times prior to classes beginning. Our third hypothesis is that students who engage in risky drinking behaviors towards the end of their first semester will have more negative college adjustment and anxiety symptoms compared to students who do not engage in risky drinking. The fourth hypothesis is that students who have elevated levels of perceived social pressure towards the end of their first semester will have more negative college adjustment and symptoms of anxiety compared to those who have unelevated levels of perceived social pressure. While there has been little investigation as to the impact of academic pressure on college students' mental health, particularly in American college students, previous research has shown that academic stress leads to low subjective well-being in Indonesian college students (Yovita & Asih, 2018). Therefore, our final hypothesis is that students who have elevated levels of academic pressure towards the end of their first semester will exhibit more negative college adjustment and symptoms of anxiety than students who have unelevated levels of academic pressure.

Previous research has demonstrated a link between social anxiety and aspects of negative college adjustment such as academic performance and social adjustment (Nordstrom, Goguen, & Hiester, 2014). Additionally, negative college adjustment has been identified as a mediator between drinking motives and alcohol-related consequences (LaBrie et al., 2012). Finally, social anxiety symptoms and anxious mood symptoms have a great deal of overlap, as some people may exhibit social anxiety symptoms due to an already existing general anxious mood. It is for these reasons that baseline levels of social anxiety symptoms, anxious mood symptoms, and negative college adjustment were included as covariates in the analyses.

Method

Participants

Two hundred sixty-six undergraduate first-year students from a large Midwestern university were recruited from an elementary psychology course. However, due to not being able to link all of the data points for some participants, and some participants not completing the final time point, 108 participants were included in at least one model of the analyses. The mean age of the students included in the analyses was 18.3 years ($SD = .48$ years). The sample ($N = 108$) was 88% female, primarily middle-class, and 77.8% Caucasian, 3.7% Hispanic/Latino, 1.9% African American, 6.5% Asian/Pacific Islander, and 10.2% Multiracial. The remaining sample demographics are displayed in Table 1. Even though participants were recruited from an elementary psychology course, the present sample quite had a diverse makeup of college majors that are represented in Table 2.

Materials

Demographics and college-related stressors. Since there is no measure to our knowledge assessing individual stressors that are specific to the college experience, we included

these items in our demographics questionnaire which we are referring to as the Demographics

and College-Related Stressors Questionnaire (DCRSQ). This is a 48-item questionnaire that

measures demographic information, distance from hometown to campus, number of times

respondents visited campus, perceived academic and social pressure, and other possible stressors

related to college-aged students and the college experience which were not used in the analyses

for this study. The DCRSQ can be found in the Appendix.

      Distance from hometown. Distance from hometown to campus is an item in the

DCRSQ and was quantified in driving hours. Six groups were created: less than 1 hour, 1-2

hours, 2-3 hours, 3-4 hours, 4-5 hours, and greater than 5 hours from campus. The grouped

distribution of students each model is shown in Table 3.

      Times visited campus. The DCRSQ was used to measure the number times that

students visited campus prior to the start of classes. This value includes first-year student

orientation which most, but not all students attended. To measure the number of times students

visited campus, four groups were created: 0-1 time, 2-3 times, 4-5 times, and more than 5 times.

Table 4 displays how many students were in each group for the various models.

      Perceived social pressure. Perceived social pressure was measured using a composite

of five items on the DCRSQ. Participants were asked if they feel pressure from peers to drink,

succeed academically, dress in a certain way, to be someone they are not, and to engage in sexual

behaviors they would not normally engage in. These items were on a 3-point Likert scale: 1 (feel

no pressure at all), 2 (somewhat feel pressure), and 3 (definitely feel pressure). This cluster of

items had a median score of 7, so this was used as the cutoff point for elevated levels of

perceived social pressure. Scores of 7 or higher were considered elevated and scores less than 7

were considered unelevated.

Perceived academic pressure. One item on the DCRSQ was used to assess perceived academic pressure. The item assesses how much pressure respondents feel regarding their academic performance on a 5-point Likert scale ranging from 1 (no pressure at all) to 5 (unnerving amount of pressure). This item had a sample median score of 4, so this was used as the cutoff point for elevated levels of perceived academic pressure. Scores of 4 or higher were considered elevated and scores less than 4 were considered unelevated. No participants reported feeling no academic pressure. The most common source of academic pressure participants perceived was from themselves, followed by future goals, and family. Sources of these academic stressors for the sample are provided in Table 5. Participants were able to select all that apply, so some of the table values include the same participant reporting multiple sources of academic pressure.

Negative college adjustment. The Student Adaptation to College Questionnaire-Modified (SACQ-Modified) was used to measure negative adjustment to college. This is a 55-item measure that consists of a 9-point Likert scale ranging from 1 (Doesn't apply to me at all) to 9 (Applies very closely to me). The SACQ-Modified, developed by LaBrie and colleagues (2012), produces two scores for each participant, both a positive college adjustment score (based on 25 items) and a negative college adjustment score (based on 30 items), and is an abbreviated version of the original 67-item Student Adaptation to College Questionnaire. The positive and negative adjustment scores are used to assess whether the respondent is adjusting to college in a positive or a negative way overall. A respondent can have both high positive and negative adjustment scores, so this measure encapsulates a more complex picture of college adjustment compared to measures that assess this on a continuum (LaBrie et al., 2012). Examples of items assessing positive college adjustment are: "I am pleased now about my decision to go to college"

and "I feel that I fit in well as part of the college environment," while examples of items

assessing negative college adjustment are: "I'm not working as hard as I should at my

coursework," "Lately I've been having doubts regarding the value of a college education," and

"Being on my own, taking responsibility taking responsibility for myself, has not been easy."

The SACQ-Modified has strong internal consistency for positive college adjustment ($\alpha = .93$)

and negative college adjustment ($\alpha = .92$) (LaBrie et al., 2012). For purposes of this study, only

negative college adjustment was examined.

     Alcohol use. The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item

assessment that was used to assess alcohol use and risky drinking behavior. The AUDIT

assesses both the frequency of alcohol consumption, such as "How often do you have six or

more drinks on one occasion" as well as negative alcohol-related consequences, such as "How

often during the last year have you failed to do what was normally expected of you because of

drinking." This measure is on a 4-point scale in which higher scores indicate heavier or more

problematic drinking behaviors. A participant's total score is calculated by the sum of their

scores on each item. The AUDIT is generally used as a categorical measure with a score of 8 or

higher indicating risky drinking behavior. However, it can also be used as a continuous measure

with higher scores indicating a greater likelihood in general of hazardous drinking behaviors

(Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). In the present study, when risky drinking

behaviors were examined as an outcome variable, scores were examined continuously. When

risky drinking behaviors were investigated as a risk factor, scores were examined as

categorically. Participants were considered as engaging in risky drinking behaviors if they

scored 8 or higher on the AUDIT, while participants who scored under 8 were considered as not

engaging in risky drinking.

Anxiety symptoms. Anxiety symptoms were measured using the Social Anxiety and Anxious Mood subscales of the Inventory of Depression and Anxiety Symptoms (IDAS-II). The IDAS-II is a 99-item symptom-based measure that is used to assess depression and anxiety. The items are on a 5-point Likert scale ranging from 1 (Not at all) to 5 (Extremely) and assess how much the respondent felt a certain way in the past two weeks. The IDAS-II consists of 14 symptom-related subscales that can be used independently of one another.

The Social Anxiety Subscale consists of five items of the IDAS-II. Items on the Social Anxiety Subscale include, "I felt self-conscious knowing that others were watching me" and "I was worried about embarrassing myself socially." When examining social anxiety symptoms as an outcome variable or covariate, scores were analyzed as continuous variables. When social anxiety was investigated as a risk factor, scores were examined as categorical variables. The sample had a median score of 9 on the Social Anxiety Subscale of the IDAS-II, so this value was used as a cutoff point. Students who scored at the median or higher (9 or higher) were considered as having elevated social anxiety symptoms. Students who scored under the median were considered as having unelevated social anxiety symptoms.

The same procedure was used for the Anxious Mood Subscale, which is a seven-item subscale of the IDAS-II. Anxious mood symptoms were examined continuously when included as an outcome variable or covariate. When anxious mood was examined as a risk factor, scores were grouped categorically. The median score of the sample had a median of the Anxious Mood Subscale was 17, which was used as the cutoff point. Students who scored 17 or higher were considered the elevated anxious mood group and students who scored under 17 were considered the unelevated anxious mood group. Items on the Anxious Mood Subscale include, "I worried a lot" and "I felt anxious."

Procedure

The present study consisted of three measurement time points throughout students' first semester in college. Participants were given the survey online to take on their own time within each measurement time point. The first time point was between weeks 4-7 of the semester. The second time point was between weeks 10-12 and the final time point was between weeks 14-16 of the semester. Following participants' consent, they immediately began the survey. Participants completed all of the same measures at each time point. No new participants were recruited after Time 1. Participants who completed the Time 1 survey but did not complete Time 2 were still able to participate at Time 3. Due to the attrition at Time 2, only Time 1 and Time 3 were included in the analyses.

To be able to link participants' responses at each time point, participants were instructed to create a unique identification number consisting of the first two letters of their hometown, the last two digits of their birth year, and the last two digits of their phone number. Participants entered this unique ID before beginning the survey at each time point. Upon completion of the survey for the given time point, participants were thanked for their participation and were given instruction about the next time point in which they would take the survey. Participants were then contacted at the beginning of Time 2 and at the beginning of Time 3 alerting them that the survey was open. For each time point they completed, participants were compensated with 0.5 credits (participants could earn up to 1.5 credits) towards their course requirements for their elementary psychology course. The inclusion criteria for this study was that participants must be in their first semester of college, understand English, and be between 18-20 years old. Participants who were 21 years old or older were excluded because we only wanted to compare alcohol use in

students who are not of legal drinking age as drinking behaviors may be different in students who are of legal drinking age, and they also may have different alcohol-related consequences.

There were a few instances where participants at Time 1 did not enter the same unique ID at Time 2 or Time 3. When IDs were only a few characters off, they were matched by other identifying information such as distance from hometown and college major when possible. Mismatched IDs were only connected if we could say with certainty that they were the same participant.

Statistical analyses

A one-way analysis of covariance (ANCOVA) was used to determine whether there are statistically significant mean differences in the outcome measures 14-16 weeks into the semester (Time 3) based on predictor variables at Time 3, all while controlling for baseline factors 4-7 weeks into the semester (Time 1). Due to a wide range of responses from participants on various measures, the predictor variables needed to be grouped. Therefore, a one-way ANCOVA was used instead of a regression model. Distance from students' hometown to campus, the number of times students visited campus prior to the start of classes, perceived social and academic pressure, and risky drinking behaviors were examined as predictor variables as part of the analyses. The outcome variables were risky drinking behaviors, negative college adjustment, social anxiety symptoms, anxious mood symptoms. Social anxiety symptoms, anxious mood symptoms, and negative college adjustment were used as covariates in the analyses. The Bonferroni procedure was used to examine specific mean differences.

<div align="center">**Results**</div>

Distance from hometown to campus

All estimated means when considering distance from hometown as a risk factor are represented in Table 3. A one-way analysis of covariance (ANCOVA) indicated a significant mean difference in risky drinking behaviors 14-16 weeks into the semester (Time 3) based on distance from hometown-to campus, above and beyond differences in negative college adjustment 4-7 weeks into the semester (Time 1), $F(5, 94) = 2.52$, $p = .035$, $\eta_p^2 = .12$, $n = 101$. The partial eta squared value is a measure of effect size and is compared with Cohen's guidelines (.01~ small effect, .06~ medium effect, .14~ large effect). Distance from hometown to campus had a medium effect size and accounted for 12% of the variance in risky drinking behaviors when controlling for negative college adjustment. Post-hoc analyses using the Bonferroni procedure, displayed in Table 6, revealed that students whose hometown was 2-3 hours from campus had higher AUDIT scores than students whose hometown was greater than 5 hours from campus ($p = .028$). The mean difference between students whose hometown was 1-2 hours from campus and 2-3 hours from campus was approaching significance ($p = .073$). Surprisingly, students whose hometown was 2-3 hours from campus had higher AUDIT scores than students whose was 1-2 hours from campus.

There was a significant mean difference in students' risky drinking behaviors at Time 3, based on distance from hometown to campus, while controlling for differences in both social anxiety levels at Time 1, $F(5, 94) = 2.52$, $p = .035$, $\eta_p^2 = .12$, $n = 101$, and anxious mood at Time 1, $F(5, 93) = 2.43$, $p = .041$, $\eta_p^2 = .12$, $n = 100$. In both models, distance from hometown to campus had a medium effect size and accounted for 12% of the variance in risky drinking behaviors. However, the equality of variances could not be assumed as the Levene test for homogeneity of variances was significant for both models, so no follow-up tests were conducted.

There were no significant mean differences in students' social anxiety symptoms Time 3, based on distance from hometown to campus, above and beyond differences in anxious mood at Time 1, $F(5, 100) = .82$, $p = .54$, $\eta_p^2 = .040$, $n = 107$, or negative college adjustment at Time 1, $F(5, 101) = .81$, $p = .55$, $\eta_p^2 = .038$, $n = 108$. However, we could not assume homoscedasticity because the Levene test was significant for both models. The fact that equal variances could not be assumed should be kept in mind when interpreting these results. Future studies should examine these factors with larger sample sizes to hopefully address this assumption violation.

Additionally, there were no significant mean differences in students' anxious mood at Time 3, based on distance from home, when controlling for baseline differences in social anxiety symptoms, $F(5, 100) = .29$, $p = .92$, $\eta_p^2 = .014$, $n = 101$, or negative college adjustment at Time 1, $F(5, 100) = .30$, $p = .91$, $\eta_p^2 = .015$, $n = 101$. There were also no significant differences in students' negative college adjustment scores at Time 3, based on distance from home, above and beyond differences in social anxiety symptoms at Time 1, $F(5, 98) = .23$, $p = .95$, $\eta_p^2 = .012$, $n = 105$, or anxious mood levels at Time 1, $F(5, 97) = .29$, $p = .92$, $\eta_p^2 = .015$, $n = 104$.

Times visited campus

When controlling for Time 1 differences in negative college adjustment, a one-way ANCOVA indicated a significant mean difference in Time 3 social anxiety symptoms based on the number of times that students visited campus prior to the start of classes, $F(3, 102) = 3.72$, $p = .014$, $\eta_p^2 = .099$, $n = 107$. These estimated means for social anxiety symptoms, along with all others when considering the number of times students visited campus as a risk factor, are represented in Table 4. The number of times students visited campus had a medium effect size and accounted for 9.9% of the variance in social anxiety levels when controlling for negative college adjustment. Post-hoc analyses using the Bonferroni procedure showed that students who

visited campus more than five times prior to the start of classes had higher social anxiety at Time 3 than students who visited campus 2-3 times ($p = .007$), 4-5 times ($p = .022$), and 0-1 time ($p = .098$). These mean differences are shown in Table 7. There were no other significant mean differences in the model.

It is worth noting that the mean difference in social anxiety levels at Time 3, based on the number of campus visits, was approaching significance while controlling for differences in anxious mood at Time 1, $F(3, 101) = 2.65$, $p = .053$, $\eta_p^2 = .073$, $n = 106$. The number of times students visited campus produced a medium effect size in this model and accounted for 7.3% of the variance in social anxiety levels. Mean differences produced by Bonferroni post-hoc analyses, found in Table 8, revealed that students who visited campus more than five times prior to the start of classes had higher social anxiety at Time 3 than students who visited campus 2-3 times ($p = .057$) and 4-5 times ($p = .045$), but social anxiety did not significantly differ in students who visited campus 0-1 time ($p = .40$). While the sample size of some of these groups is small, including anxious mood as covariate should help reduce some of the effects that small group sizes may have. In spite of small group sizes, the number of times students visited campus was still approaching significance as a risk factor for social anxiety with a medium effect size, even while controlling for differences in baseline anxious mood.

There were no significant mean differences in students' anxious mood at Time 3, based on the number of campus visits prior to the start of classes, when accounting for differences in Time 1 social anxiety, $F(3, 101) = .79$, $p = .50$, $\eta_p^2 = .023$, $n = 106$, or negative college adjustment, $F(3, 101) = 1.85$, $p = .14$, $\eta_p^2 = .052$, $n = 106$. There were also no significant mean differences in students' negative college adjustment at Time 3, based on the number of times students visited campus, when controlling for differences in social anxiety at Time 1, $F(3, 99) =$

1.58, $p = .20$, $\eta_p^2 = .046$, $n = 104$, or anxious mood at Time 1, $F(3, 98) = .84$, $p = .47$, $\eta_p^2 = .025$,

$n = 103$.

Risky drinking

All estimated means and significant differences when considering risky drinking

behaviors as a risk factor are displayed in Table 9. A one-way ANCOVA showed no significant

mean difference in students' social anxiety levels at Time 3, between students who engaged in

risky drinking habits and those who did not at Time 3, when accounting for differences in

baseline anxious mood, $F(1, 97) = .090$, $p = .77$, $\eta_p^2 = .001$, $n = 100$, or negative college

adjustment, $F(1, 98) = .739$, $p = .39$, $\eta_p^2 = .007$, $n = 101$. There were also no significant mean

differences in students' anxious mood at Time 3, based on risky drinking habits at Time 3 while

controlling for Time 1 social anxiety, $F(1, 97) = .009$, $p = .93$, $\eta_p^2 = .000$, $n = 100$, or negative

college adjustment, $F(1, 97) = 1.59$, $p = .21$, $\eta_p^2 = .016$, $n = 100$. It is important to note that the

Levene test for homoscedasticity was significant when controlling for negative college

adjustment.

There was a significant mean difference in students' negative college adjustment scores

at Time 3, between students who engaged in risky drinking habits and those who did not at Time

3, above and beyond differences in social anxiety levels at Time 1, $F(1, 95) = 6.83$, $p = .010$, η_p^2

$= .067$, $n = 100$. Drinking behaviors had a medium effect size and accounted for 6.7% of the

variance in negative college adjustment when controlling for social anxiety symptoms. Students

who engaged in risky drinking habits at Time 3 had higher negative college adjustment scores at

Time 3 than students who did not engage in risky drinking behaviors. The same was true when

controlling for anxious mood at Time 1, $F(1, 94) = 8.27$, $p = .005$, $\eta_p^2 = .081$, $n = 97$. Students

who engaged in risky drinking habits at Time 3 had higher negative college adjustment scores at

Time 3 than students who did not engage in risky drinking behaviors. The partial eta squared

value in this model indicates a medium effect size, which corresponds to 8.1% of the variance in

negative college adjustment when controlling for anxious mood symptoms, being accounted for

by drinking behaviors.

Perceived social pressure

A one-way ANCOVA indicated that there was no significant mean difference in students'

social anxiety at Time 3, between students who were unelevated in perceived social pressure and

those who were elevated at Time 3, when accounting for differences in anxious mood at Time 1,

$F(1, 104) = 1.75$, $p = .12$, $\eta_p^2 = .010$, $n = 107$. However, there was a significant mean difference

in students' social anxiety levels, based on perceived social pressure, above and beyond

differences in negative college adjustment at Time 1, $F(1, 105) = 4.73$, $p = .032$, $\eta_p^2 = .043$, $n =$

108. However, the Levene test was significant, so this should be taken into account when

interpreting this finding. These estimated means, along with all others when considering

perceived social pressure as a risk factor, are provided in Table 10.

There was a significant mean difference in students' anxious mood at Time 3, between

students who were unelevated in perceived social pressure and those who were elevated at Time

3, above and beyond differences in baseline social anxiety levels, $F(1, 104) = 8.85$, $p = .004$, η_p^2

$= .078$, $n = 107$. Students who had elevated perceived social pressure at Time 3 had significantly

higher anxious mood at Time 3 than students who did not have elevated perceived social

pressure. Perceived social pressure produced a moderate effect size, accounting for 7.8% of the

variance in Time 3 anxious mood when controlling for baseline social anxiety.

There was a significant mean difference in students' anxious mood symptoms at Time 3,

between students who were unelevated and elevated in perceived social pressure at Time 3,

above and beyond differences negative college adjustment at Time 1, $F(1, 104) = 14.6$, $p < .001$, $\eta_p^2 = .12$, $n = 107$. Students who had elevated perceived social pressure at Time 3 had significantly more anxious mood symptoms at Time 3 than students who were unelevated in perceived social pressure. The partial eta squared value reflects a medium effect size and reveals that perceived social pressure accounts for 12% of the variance in anxious mood when controlling for negative college adjustment. The Levene test for homogeneity of variances was barely significant ($p = .040$).

It is worth noting that the mean difference in negative college adjustment scores at Time 3, based on level of perceived social pressure at Time 3 was approaching significance while controlling for baseline social anxiety levels, $F(1, 102) = 2.98$, $p = .087$, $\eta_p^2 = .028$, $n = 105$, and anxious mood, $F(1, 101) = 2.78$, $p = .099$, $\eta_p^2 = .027$, $n = 104$. Both models produced small effect sizes with perceived social pressure only accounting for 2.8% of the variance in negative college adjustment when controlling for baseline social anxiety and 2.7% when controlling for anxious mood. Both models revealed that students who had elevated perceived social pressure at Time 3 had higher negative college adjustment at Time 3 than students who did not have elevated perceived social pressure.

Perceived academic pressure

A one-way ANCOVA revealed a significant mean difference in students' negative college adjustment scores at Time 3, between students who were unelevated and elevated in Time 3 perceived academic pressure, above and beyond differences in anxious mood at Time 1, $F(1, 101) = 4.60$, $p = .034$, $\eta_p^2 = .044$, $n = 104$, and social anxiety symptoms, $F(1, 102) = 6.52$, $p = .012$, $\eta_p^2 = .060$, $n = 105$. In both models, students who had elevated perceived academic pressure at Time 3 had significantly higher negative college adjustment scores at Time 3 than

students who did not have elevated perceived academic pressure. Table 11 provides the estimated means for this difference, in addition to all estimated means when examining perceived academic pressure as a risk factor. There was a small effect size when controlling for anxious mood, such that perceived academic pressure accounted for 4.4% of the variance in negative college adjustment. Perceived academic pressure produced a medium effect size when controlling for anxious mood symptoms, accounting for 6% of the variance in negative college adjustment.

There was a significant mean difference in students' anxious mood Time 3, between students who were unelevated in perceived academic pressure and those who were elevated at Time 3, above and beyond differences in social anxiety symptoms at Time 1, $F(1, 104) = 7.68$, $p = .007$, $\eta_p^2 = .069$, $n = 107$. Students who had elevated perceived academic pressure at Time 3 had significantly more anxious mood symptoms at Time 3 than students who were unelevated in perceived academic pressure. Perceived academic pressure produced a medium effect size in anxious mood symptoms, accounting for 6.9% of the variance above and beyond differences in baseline social anxiety levels. There was also a significant mean difference in students' anxious mood, between students who were unelevated and elevated in perceived academic pressure at Time 3, above and beyond differences in baseline negative college adjustment, $F(1, 104) = 7.48$, $p = .007$, $\eta_p^2 = .067$, $n = 107$. This partial eta squared value shows a medium effect size, corresponding to 6.7% of the variance in anxious mood symptoms being accounted for by perceived academic pressure while controlling for differences in negative college adjustment. Students who had elevated perceived academic pressure at Time 3 had significantly higher anxious mood levels at Time 3 than students who did not have elevated perceived academic

pressure. It should be noted that the Levene test was significant and should be kept in mind when interpreting this finding regarding negative college adjustment.

There was no significant mean difference in students' social anxiety levels Time 3, between students who were unelevated in perceived academic pressure and those who were elevated at Time 3, while accounting for differences in anxious mood at Time 1, $F(1, 104) = .35$, $p = .55$, $\eta_p^2 = .003$, $n = 107$ or negative college adjustment at Time 1, $F(1, 105) = 1.13$, $p = .29$, $\eta_p^2 = .011$, $n = 108$. The Levene test was significant for when negative college adjustment was included as a covariate.

Anxious mood

While not pertinent to our main hypotheses, we felt it was warranted to explore whether students differed in negative college adjustment above and beyond differences in anxiety symptoms. As such, a one-way ANCOVA was conducted and revealed a significant mean difference, provided in Table 12, in students' negative college adjustment scores at Time 3, between students who were unelevated in anxious mood and those who were elevated at Time 3, above and beyond differences in social anxiety levels at Time 1, $F(1, 101) = 28.9$, $p < .001$, $\eta_p^2 = .22$, $n = 104$. Anxious mood produced a large effect size and accounted for 22% of the variance in negative college adjustment when controlling for social anxiety symptoms. Students who had elevated anxious mood at Time 3 had significantly higher negative college adjustment scores at Time 3 than students who had unelevated anxious mood.

Social anxiety

A one-way ANCOVA showed a significant mean difference in students' negative college adjustment scores at Time 3, between students who had unelevated and elevated social anxiety symptoms at Time 3, above and beyond differences in anxious mood at Time 1, $F(1, 101) = 8.59$,

$p = .004$, $\eta_p^2 = .078$, $n = 104$. Students who had elevated social anxiety at Time 3 had significantly higher negative college adjustment scores at Time 3 than students who did not have elevated social anxiety. These estimated means are displayed in Table 12. This partial eta squared value indicates a medium effect size and that social anxiety levels accounted for 7.8% of the variance in negative college adjustment above and beyond differences in anxious mood.

Discussion

The findings of this study add to a lacking area of anxiety research relating to college students. This study identified distance from hometown to campus as a potential risk factor for risky drinking behaviors towards the end of students' first semester at college for students whose hometown was 2-3 hours from campus, as these students were more likely to engage in risky drinking behaviors than students whose hometown was 1-2 or more than 5 hours from campus. This relationship was significant when controlling for negative college adjustment, social anxiety symptoms, and anxious mood symptoms. This finding could be due to the fact that students whose hometown is 2-3 hours may be more likely to visit home because it is not too far to drive, but also not so close that they feel extremely comfortable, and as a result, they may feel it is harder to hide hazardous drinking behaviors from their family. One reason that students whose hometown is far from campus may be less likely to engage in risky drinking behaviors is that they may feel it is harder to get help from their family if they suffer from serious alcohol-related consequences. Contrary to our hypotheses, distance from hometown to campus does not appear to be a risk factor for negative college adjustment, social anxiety or anxious mood symptoms.

Interestingly, visiting campus more than five times prior to the start of classes was identified as a risk factor for social anxiety symptoms later in the semester when controlling for negative college adjustment and anxious mood symptoms. It should be noted, that this

relationship was approaching significance when controlling for anxious mood symptoms ($p =$ .053). While students who visited campus more than five times had significantly more social anxiety symptoms towards the end of the semester than students who visited campus 2-3 or 4-5 times, they did not differ significantly from those who visited campus 0-1 time. One potential explanation for this is that students who visit campus more than five times may feel extremely confident going into college about what to expect, so they may be more overwhelmed by the life changes associated with college because they were so confident going in. Students who visit campus one or fewer times may have higher social anxiety because they are simply not familiar with campus or other students at all. This relationship implies that visiting campus very few times before starting school has the same effect on social anxiety symptoms as visiting campus very frequently and that a happy medium of 2-5 times may be the ideal number of times to not lead to higher social anxiety. The number of times that students visited campus did not result in significant differences in anxious mood symptoms or negative college adjustment.

In contrast to previous studies examining the link between social anxiety and alcohol use, there were no significant mean differences in social anxiety symptoms between students who engaged in risky drinking behaviors and those who did not. Additionally, students who engaged in risky drinking behaviors towards the end of the semester did not significantly differ from those who did not engage in risky drinking behaviors with respect to anxious mood symptoms. However, students who engaged in risky drinking behaviors towards the end of the semester had significantly more negative college adjustment than those who did not engage in risky drinking behaviors. This relationship was significant when controlling for both baseline social anxiety and anxious mood symptoms. Since negative college adjustment encompasses many different aspects of the college experience, this finding indicates that drinking behaviors have a

multidimensional effect on students' ability to cope with the changes associated with the college experience.

Our findings indicate that students who are at elevated levels of perceived social pressure appear to be at greater risk for more anxious mood symptoms than those who do not perceive high levels of social pressure. This model does not establish causation, so it is possible that students who are already high in anxious mood are more likely to interpret more social pressure from certain situations. However, this relationship was significant when controlling for baseline social anxiety symptoms, which would likely be the aspect of anxiety that would explain a large part of the relationship. So in light of the model's significance while accounting for social anxiety symptoms, it can be said with greater confidence that the difference in anxious mood symptoms is due more specifically to perceived social pressure and not due to social anxiety symptoms. Additionally, this relationship was significant when accounting for negative college adjustment, which encapsulates a variety of college-related stressors that could be involved. Perceived social pressure was approaching significance as a risk factor for more negative college adjustment when controlling for baseline levels of anxious mood and social anxiety symptoms. Future studies should examine this relationship with larger sample sizes as the small sample in this study may have prevented truly significant differences from being detected. This study also found that students with elevated perceived social pressure are at a higher risk for social anxiety symptoms when controlling for negative college adjustment but not when controlling for anxious mood. However, this latter finding may be different with larger sample sizes as it was not extremely non-significant ($p = .118$).

This study's findings demonstrate that students high in perceived academic pressure are at a higher risk for more anxious mood symptoms and negative college adjustment compared to

those who are not high in perceived academic pressure. Perceived academic pressure was not found to be a risk factor for social anxiety when controlling for anxious mood or negative college adjustment.

Finally, this study demonstrated that students who had elevated social anxiety and anxious mood symptoms had significantly higher negative college adjustment at the end of the semester than students who had unelevated anxious mood and social anxiety. This finding suggests that highly anxious students are at higher risk for negative college adjustment.

Implications

There are many implications of this study's findings. The first is that students may be at more likely to engage in hazardous drinking behaviors based on how far their hometown is from where they attend college. Families can take measures to prepare their children for this transition in their lives to avoid these outcomes. These measures could include families providing plenty of social support throughout the semester as well as educating their children about the risks of hazardous drinking and the effect that it can have on their adjustment to college. Future research should examine effective ways of communicating this to college students. The second is that universities should explore the prospect of recommending to future students and their families, that students visit campus between 2-5 times prior to starting classes to reduce the risk of developing social anxiety symptoms. Many universities have alcohol-use education programs that are given to students about the risks of heavy drinking. Since this study demonstrated a link between risky drinking behaviors and negative college adjustment, universities should not only communicate the health consequences of heavy drinking, but they should also explain to students the risks it poses to their overall adjustment to the new experiences and environments that accompany going to college. Additionally, efforts should be made by universities to facilitate

social environments that reduce social pressures on students. Finally, this study demonstrated a wide range of sources of academic pressure that students face. This academic pressure can have negative effects on anxious mood and college adjustment, so both college students and their families should be educated about these effects in hopes of minimizing them in the future.

Strengths

There are several strengths to this study. The study was longitudinal in nature so there can be more confidence than in a cross-sectional design, that anxiety symptoms and negative college adjustment are a result of the risk factors and not the reverse. Additionally, this study was not a simple correlational design. Covariates were included which make the findings more robust and trustworthy that other factors are not influencing the relationship. With the exception of our own demographics and college-related stressors questionnaire, all of the measures that were used were robust, validated measures. Finally, this study provides insight into an area that has not been examined in depth before and provides a basis for future research in the field.

Limitations

While this study presents new and significant findings in the field, there are some limitations that need to be considered. This first is that this study lacks a robust sample size because many more subjects were recruited than could be included in the analyses. This small sample size likely a major contributor to the significant Levene tests for homoscedasticity for certain models in which equal variances among groups could not be assumed. The sample was also 88% female which is not a representative gender makeup of university student populations. Additionally, this study was conducted at a large Midwestern university, so while the findings may be generalizable to other large universities, they may be less so to smaller colleges. There

are also many factors that can factor into students' anxiety levels and obviously not all possible covariates could be included in the analyses.

Future research

Future studies should address these limitations, particularly by utilizing larger sample sizes. This is just a small slice of the potential risk factors that could predispose college students to develop more anxiety symptoms and negative college adjustment. More risk factors should be examined along with a variety of covariates. Some of these may include specific college majors, how often students visit home, whether students are first-generation college students, and attachment style, which may play a role in the effects that distance from home and number of campus visits have. Additionally, there were not enough participants at Time 2 to use the data from that time point, so we were unable to follow participants across all three time points as anticipated and as a result, could not explore the trajectory of anxiety symptoms and negative college adjustment throughout the semester. Future research should examine this aspect of anxiety and negative college adjustment in college students. Given our findings that perceived social pressure can have a significant negative impact on students, future research should explore effective ways of educating students on strategies to help them not cave into the pressure of socially fitting in beyond what they are comfortable with. Lastly, future studies should examine positive college adjustment which was beyond the scope of the present study. Risk factors that may lead to lower positive college adjustment or potentially, factors that facilitate higher positive college adjustment should be explored further.

 Conclusion

This study demonstrated that there are risk factors for anxiety that are specific to college students and that those can have an important impact on college students' mental health and their

degree of negative college adjustment. Distance from students' hometown to campus was not

found to be a risk factor for negative college adjustment, social anxiety or anxious mood

symptoms. However, students whose hometown was 2-3 hours from campus, were more likely

to engage in risky drinking behaviors towards the end of the semester than students whose

hometown was 1-2 or more than 5 hours from campus. Students who visited campus more than

five times prior to the start of classes had more social anxiety symptoms later in the semester

than students who visited campus 2-3 or 4-5 times, but did not differ from those who visited

campus 0-1 time, while the number of times students visited campus was not found to be a risk

factor for anxious mood symptoms or negative college adjustment. Students who engaged in

risky drinking behaviors had more negative college adjustment but did not differ in anxious

mood or social anxiety symptoms from students who did not engage in risky drinking habits.

Students with elevated perceived social pressure reported more negative college adjustment,

social anxiety, and anxious mood symptoms. Students elevated in perceived academic pressure

had more negative college adjustment and anxious mood symptoms than students who were not

elevated, but they did not differ in social anxiety symptoms. College is and will continue to be, a

major transition period for young adults, so it is important that risk factors for anxiety and poor

college adjustment continue to be explored in addition to identifying protective factors as well.

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Table 1

Descriptive statistics: Demographics

	n	*%*
Sexual orientation		
Heterosexual	97	89.8
Gay/lesbian/queer	4	3.7
Bisexual	7	6.5
Mental health history (anxiety-related)		
Family history of anxiety disorder diagnosis	33	30.5
Personal history of anxiety disorder diagnosis	24	22.2
Current relationship status		
Single	66	61.1
In a romantic relationship	42	38.9
Current (personal) financial situation		
It's a financial struggle	6	5.6
It's tight, but I'm doing fine	52	48.1
Finances aren't really a problem	50	46.3
Current parent SES		
Lower-class	0	0
Lower-middle-class	11	10.2
Middle-class	43	39.8
Upper-middle-class	49	45.4
Upper-class	5	4.6

Note. All demographic information that is reported here was collected at the final time point because that is when the risk factors and outcome measures were collected.

Table 2

Frequencies of college majors

College major	*n*	*%*
Biology/chemistry-related	15	13.9
Healthcare-related	34	31.5
Social sciences	11	10.2
Business	6	5.6
English/arts/history	4	3.7
Engineering	3	2.8
Other	7	6.5
Open major	13	12.0
More than one major	15	13.9

Note. Participants were only counted once in this table, regardless

of how many majors they had.

Table 3

Results for distance from hometown as a risk factor (means are adjusted)

| | Hours from hometown to campus (driving) | | | | | | | | | | | | | | | | | | |
| | <1 hour | | | 1-2 hours | | | 2-3 hours | | | 3-4 hours | | | 4-5 hours | | | >5 hours | | | |
Outcome measure	M	SE	n	M	SE	n	M	SE	n	M	SE	n	M	SE	n	M	SE	n	p
Risky drinking behaviors																			
Covariate:																			
Negative college adjustment	5.29	1.11	17	4.51	.72	40	8.50	1.19	15	4.87	1.24	14	4.17	1.88	6	2.34	1.53	9	.035**
Anxious mood†	5.48	1.13	17	4.56	.73	39	8.32	1.19	15	5.07	1.23	14	4.23	1.87	6	2.12	1.53	9	.041**
Social anxiety†	5.50	1.12	17	4.42	.72	40	8.33	1.18	15	5.15	1.23	14	4.22	1.86	6	2.14	1.52	9	.035**
Negative college adjustment																			
Covariate:																			
Anxious mood	113	8.39	17	117	5.33	40	125	8.45	16	123	9.37	13	118	12.8	7	118	10.3	11	.92
Social anxiety	117	8.66	17	118	5.50	41	121	8.78	16	125	9.75	13	113	13.3	7	111	10.6	11	.95
Social anxiety																			
Covariate:																			
Negative college adjustment†	10.2	1.01	18	9.60	.66	41	9.42	1.07	16	11.39	1.12	15	7.79	1.61	7	9.64	1.29	11	.55
Anxious mood†	9.61	.94	18	9.54	.62	40	9.09	.98	16	11.7	1.02	15	10.0	1.49	7	9.82	1.19	11	.54
Anxious mood																			
Covariate:																			
Negative college adjustment	18.3	1.49	18	17.3	.99	41	18.8	1.64	15	18.0	1.65	15	16.1	2.39	7	16.9	1.92	11	.91
Social anxiety	17.9	1.40	18	17.5	.92	41	17.4	1.51	15	18.4	1.52	15	19.1	2.23	7	16.2	1.77	11	.92

Note. This table presents adjusted means for the outcome measures with corresponding standard errors.

† Levene test was significant.

** $p < .05$.

Table 4

Results for number of times visited campus is a risk factor (means are adjusted)

| | Number of times students visited campus | | | | | | | | | | | |
| | 0-1 time | | | 2-3 times | | | 4-5 times | | | >5 times | | |
Outcome measure	M	SE	n	M	SE	n	M	SE	n	M	SE	n	p
Negative college adjustment													
Covariate:													
Social anxiety	94.2	12.2	8	120	4.03	73	122	8.31	17	111	15.2	6	.20
Anxious mood	101	11.8	8	119	3.88	72	123	7.98	17	126	13.9	6	.47
Social anxiety													
Covariate:													
Anxious mood	10.1	1.36	8	9.67	.441	74	9.08	.895	18	14.1	1.60	6	.053*
Negative college adjustment	9.75	1.46	8	9.46	.471	75	9.47	.962	18	15.3	1.69	6	.014**
Anxious mood													
Covariate:													
Social anxiety	14.8	2.06	8	17.9	.68	74	17.2	1.37	18	18.8	2.55	6	.50
Negative college adjustment	15.5	2.19	8	17.4	.71	74	17.7	1.44	18	23.0	2.53	6	.14

Note. This table includes adjusted means for the outcome measures with standard errors.

* $p < .10$. ** $p < .05$.

Table 5

Frequency of sources of academic pressure

Source of academic pressure	*n*	*%*
Family	80	74.1
Friends	53	49.1
Future goals	92	85.2
Self	106	98.1
Professors	21	19.4
Mentors	9	8.33

Note. This table presents the frequency that each source of pressure

was reported. Participants were able to select all that apply, so

many participants reported more than one of these sources of

pressure (22 participants reported two sources of academic

pressure, 26 reported three sources, 36 reported four sources, and

17 reported five or more sources).

Table 4

Results for number of times visited campus is a risk factor (means are adjusted)

	Number of times students visited campus											
	0-1 time			2-3 times			4-5 times			>5 times			
Outcome measure	M	SE	n	M	SE	n	M	SE	n	M	SE	n	p
Negative college adjustment													
Covariate:													
Social anxiety	94.2	12.2	8	120	4.03	73	122	8.31	17	111	15.2	6	.20
Anxious mood	101	11.8	8	119	3.88	72	123	7.98	17	126	13.9	6	.47
Social anxiety													
Covariate:													
Anxious mood	10.1	1.36	8	9.67	.441	74	9.08	.895	18	14.1	1.60	6	.053*
Negative college adjustment	9.75	1.46	8	9.46	.471	75	9.47	.962	18	15.3	1.69	6	.014**
Anxious mood													
Covariate:													
Social anxiety	14.8	2.06	8	17.9	.68	74	17.2	1.37	18	18.8	2.55	6	.50
Negative college adjustment	15.5	2.19	8	17.4	.71	74	17.7	1.44	18	23.0	2.53	6	.14

Note. This table includes adjusted means for the outcome measures with standard errors.

* $p < .10.$ ** $p < .05.$

Table 7

Bonferroni pairwise comparisons: Number of times visited campus as a risk factor for social anxiety symptoms while controlling for negative college adjustment

| | Number of times visited campus | | | | | |
| | 2-3 times | | 4-5 times | | >5 times | |
	Mean difference	*p (SE)*	*Mean difference*	*p (SE)*	*Mean difference*	*p (SE)*
0-1 time	.29	1.00 (1.54)	.28	1.00 (1.74)	5.53	.098* (2.27)
2-3 times	-----	-----	.008	1.00 (1.07)	5.82	.007*** (1.75)
4-5 times	-----	-----	-----	-----	5.81	.022** (1.95)

Note. Significance values are for each individual pairwise comparison with the standard error in

parentheses. Mean differences are between adjusted means for scores on social anxiety subscale of the

IDAS-II.

* *p* < .10. ** *p* < .05. *** *p* < .01.

Table 8

Bonferroni pairwise comparisons: Number of times visited campus as a risk factor for social
anxiety symptoms while controlling for anxious mood

	Number of times visited campus					
	2-3 times		4-5 times		>5 times	
	Mean difference	*p (SE)*	*Mean difference*	*p (SE)*	*Mean difference*	*p (SE)*
0-1 time	.41	1.00 (1.43)	1.00	1.00 (1.63)	3.98	.40 (2.14)
2-3 times	-----	-----	.59	1.00 (1.00)	4.39	.057* (1.66)
4-5 times	-----	-----	-----	-----	4.99	.045** (1.83)

Note. Significance values are for each individual pairwise comparison with the standard error

in parentheses. Mean differences are between adjusted means for scores on social anxiety

subscale of the IDAS-II.

* $p < .10$. ** $p < .05$.

Table 9

Results for risky drinking behaviors as a risk factor (means are adjusted)

Outcome measure	Did not engage in risky drinking behaviors			Engaged in risky drinking behaviors			
	M	*SE*	*n*	*M*	*SE*	*n*	*p*
Negative college adjustment Covariate:							
Social anxiety	113	3.90	73	133	6.66	25	.010**
Anxious mood	113	3.80	72	135	6.46	25	.005***
Social anxiety Covariate:							
Anxious mood	9.73	.46	75	10.0	.80	25	.77
Negative college adjustment	9.97	.49	76	9.12	.86	25	.39
Anxious mood Covariate:							
Social anxiety	17.6	.68	76	17.4	1.22	24	.93
Negative college adjustment[†]	18.0	.71	76	16.1	1.27	24	.21

Note. This table includes adjusted means for the outcome measures with standard errors.

[†] Levene test was significant.

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

Table 10

Results for perceived social pressure as a risk factor (means are adjusted)

Outcome measure	Unelevated perceived social pressure			Elevated perceived social pressure			
	M	*SE*	*n*	*M*	*SE*	*n*	*p*
Negative college adjustment Covariate:							
Social anxiety	110	5.55	41	123	4.38	64	.087*
Anxious mood	111	5.38	40	123	4.20	64	.099*
Social anxiety Covariate:							
Anxious mood	9.17	.63	41	10.26	.49	66	.19
Negative college adjustment†	8.68	.66	42	10.53	.52	66	.032**
Anxious mood Covariate:							
Social anxiety	15.5	.90	65	19.0	.71	42	.004***
Negative college adjustment†	14.9	.92	65	19.46	.73	42	< .001***

Note. This table includes adjusted means for the outcome measures with standard errors.

† Levene test was significant.

* $p <$ .10. ** $p < .05$. *** $p < .01$.

Table 11

Results for perceived academic pressure as a risk factor (means are adjusted)

Outcome measure	Unelevated perceived academic pressure			Elevated perceived academic pressure			
	M	*SE*	*n*	*M*	*SE*	*n*	*p*
Negative college adjustment							
Covariate:							
Social anxiety	105	6.1	31	123	3.92	74	.012**
Anxious mood	107	6.04	30	123	3.81	74	.034**
Social anxiety							
Covariate:							
Anxious mood	9.48	.72	31	9.99	.45	76	.55
Negative college adjustment[†]	9.13	.76	32	10.1	.49	76	.29
Anxious mood							
Covariate:							
Social anxiety	15.3	1.00	32	18.7	.65	75	.007***
Negative college adjustment[†]	15.2	1.08	32	18.7	.70	75	.007***

Note. This table includes adjusted means for the outcome measures with standard errors.

[†] Levene test was significant.

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

Table 12

Result for anxiety symptoms as a risk factor for negative college adjustment (means are adjusted)

Outcome measure	Unelevated anxious mood			Elevated anxious mood			
	M	*SE*	*n*	*M*	*SE*	*n*	*p*
Anxious mood[a]	98.9	4.65	50	135	4.45	54	< .001***
Social anxiety[b]	107	4.94	52	130	4.94	52	.004***

Note. This table includes adjusted means for the Anxious Mood Subscale and Social Anxiety

Subscale of the IDAS-II with standard errors.

[a] Time 1 social anxiety was the covariate.

[b] Time 1 anxious mood was the covariate.

*** $p < .01$.

Appendix

Demographics and College-Related Stressors Questionnaire

1. How old are you? _____

2. What year in school are you?

    a. First-year, "Freshman"

    b. Second-year, "Sophomore"

    c. Third-year, "Junior"

    d. Fourth-year, "Senior"

    e. Fifth-year, "Other"

3. What is your gender?

    a. Male

    b. Female

    c. Other

4. What is your sexual orientation?

    a. Heterosexual

    b. Gay/lesbian/queer

    c. Bisexual

5. How would you classify yourself? Choose all that apply.

    a. Hispanic/Latino

    b. American Indian or Alaskan Native

    c. Asian/Pacific Islander

    d. Black/African American

    e. Caucasian/White

    f. Other

6. Has anyone in your family ever been diagnosed with a mental health disorder?

    a. Yes

        7. Please indicate the disorder:

            a. Depression

            b. Bipolar disorder

            c. Schizophrenia

   d. Generalized anxiety disorder

   e. Panic disorder

   f. Social phobia

   g. Other: _____

   h. Unknown

   b. No

8. Have you ever been diagnosed with a mental health disorder?

   a. Yes

      9. Please indicate the disorder:

         a. Depression

         b. Bipolar disorder

         c. Schizophrenia

         d. Generalized anxiety disorder

         e. Panic disorder

         f. Social phobia

         g. Other: _____

   b. No

10. What socioeconomic status would you consider your parents to be in currently?

   a. Lower class

   b. Lower-middle class

   c. Middle class

   d. Upper-middle class

   e. Upper class

11. How would you describe your financial situation growing up?

   a. Poor, not enough to get by

   b. Enough, not many extras

   c. Comfortable

   d. Well to do

12. What is your parents' marital status?

   a. Married

   b. Divorced

13. What year did your parents get divorced? _____

c. Separated

14. What year did your parents separate? _____

d. Widowed

15. What year did one or both of your parents pass? _____

16. What is your college major (include any minors)? _____

17. Were you primarily raised in the United States?

a. Yes

18. Approximately how many driving hours away is your hometown from campus

(the location where you lived immediately before coming college will suffice)?

_____

a. No

19. What country were you primarily raised in? _____

20. Which of the following best describes your current living arrangements?

a. Dorm

b. On-campus apartment

c. Off-campus apartment

d. University apartment

e. Other campus housing

f. Fraternity house

g. Sorority house

h. With family

21. How many times did you visit campus before the start of the school year (including

orientation)? _____

22. What best describes your current relationship status?

a. Single

b. Dating (0-6months)

c. Dating (6 months- 1 year)

d. Dating (>1 years)

e. Engaged

f. Married

23. If you are in a relationship, is this a long-distance relationship?

    a. Yes

    b. No

24. How many hours per day do you spend on an electronic device not working on job or school-related tasks? _____

25. How many hours per week do you spend time with friends (not including roommates)?

    _____

26. How many times per month do you go to the bars? _____

27. How many times per month do you go to parties? _____

28. Do you feel pressure from peers to drink?

    a. Not at all

    b. Somewhat

    c. Definitely

29. Do you feel pressure from peers to succeed academically?

    a. Not at all

    b. Somewhat

    c. Definitely

30. Do you feel pressure from peers to dress a certain way?

    a. Not at all

    b. Somewhat

    c. Definitely

31. Do you feel pressure from peers to be someone you are not?

    a. Not at all

    b. Somewhat

    c. Definitely

32. Do you feel pressure to from peers engage in sexual behaviors that you normally would not engage in?

    a. Not at all

    b. Somewhat

    c. Definitely

33. Do you use any drugs recreationally?

    a. Yes

       34. Please indicate what drug(s).

    b. No

35. Do you receive financial aid?

    a. Yes

    b. No

36. Under normal circumstances, do your parents pay your current U-bills?

    a. Yes

    b. No

       37. Under normal circumstances, do you personally pay your current U-bills?

          a. Yes

          b. No

38. How would you describe your current financial situation?

    a. It's a financial struggle

    b. It's tight but I'm doing fine

    c. Finances aren't really a problem

39. Are you currently employed?

    a. Yes

       40. On a scale of 1 (not stressful at all) to 5 (extremely stressful), how stressful do you feel your job is?

       41. How many hours per week do you work?

       42. What is the reason you have this job (e.g., for extra money, to pay for school, for pleasure, to fulfill some other requirement such as for an internship or scholarship, etc.)?

       _____

    b. No

43. How many semester hours are you taking this semester? _____

44. Approximately how many hours a week do you spend working on homework outside of class? _____

45. On a scale of 1 (deeply dissatisfied)-5 (extremely satisfied), how satisfied are you with your academic performance? _____

46. On a scale of 1 (no pressure at all)-5 (unnerving amount of pressure), how much pressure do you feel with regards to your academic performance? _____

   47. If you indicated any number other than 1, where do these pressures come from (select all that apply)?
      a. Family
      b. Friends
      c. Future goals
      d. Self
      e. Professors
      f. Mentors
      g. Other: _____

48. Please indicate any stressors that you are experiencing that you feel are not covered in any of these questions. If there are none, please write N/A.

_____

_____

_____

_____