PSYCHOLOGICAL WELL-BEING AMONG COLLEGE STUDENTS

Examining the Predictors and Correlates of Well-Being among College Students

by

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Table of Contents

Abstract

Purpose: The purpose of this cross-sectional study is to examine young adults' psychological well being in a diverse sample of college students.

Methods: Sixty-five students aged 18 to 22 were recruited from a mid-size public university in the northeast during the spring of 2023. Participants completed a 72-item online survey that assessed self-reported depression symptomatology, anxiety, self-harming behaviors, flourishing, and mental healthcare utilization. Differences across year-in-college, racial/ethnic background, and gender were assessed.

Results: Symptoms of depression and anxiety were marginally higher among junior and senior students. White students reported slightly higher depression and anxiety symptoms. Rates of non-suicidal self-injury were negligible although students who self-identified as gender diverse (e.g., gender fluid) reported self-harming behavior three times the rate of male and female students. Juniors reported more flourishing attitudes and behaviors than any other demographic. Bivariate analyses revealed that anxiety was significantly correlated with age, year in college, and mental healthcare utilization. Multivariate linear regression analysis underscored the importance of examining the influence of racial/ethnic differences and healthcare utilization.

Conclusions: As colleges and universities address the mental health epidemic, they should consider which students are most at risk, how prevalence rates vary by sociodemographic variables, and how policies and interventions should change to meet the needs of an increasingly diverse student body. The results of this study have the potential to influence how administrators allocate university resources for monitoring and supporting student psychological health and wellbeing.

INTRODUCTION

The college student population in the United States has become more diverse over the past several decades in terms of race/ ethnicity, socioeconomic status, and academic readiness (Downs et al., 2018). Matriculating through college is characterized by feelings of excitement and promise for many young adults. During this time, students must master important developmental milestones. Often, they are faced with new responsibility coupled with newly acquired autonomy across multiple life domains such as educational, professional, familial, and romantic (Jessor et al., 1991; Bachman et al., 1996; Boles et al., 1999; Arnett et al., 2000). Successful mastery of these developmental milestones are associated with psychological resilience, wellbeing, and flourishing.

For an expanding portion of the college student population, the transition to young adulthood can bring on challenges for which they may not readily have the skills, competencies, or disposition to meet. College is often stressful for young adults (Keyes et al., 2012). It is estimated that approximately 75% of all mental health conditions have their first presentation during the early adult time period (Kessler et al., 2007). For these students, they may experience any number of psychological problems including but not limited to anxiety, and depression. These negative mental health problems are associated with a myriad of psychosocial (e.g., loneliness) and behavioral problems (e.g., substance misuse).

A well-established body of epidemiologic studies have documented the pervasiveness of mental health problems among the general population and specifically among college-aged students (Merikangas, 2009; Bullmore, 2020; Horton, 2015). It is

imperative that additional epidemiologic as well as etiologic research be conducted to examine the prevalence and trends as well as the correlates and the predictors of psychological functioning–especially in the immediate aftermath of the COVID-19 pandemic and the overwhelming salience of social media–both factors that are associated with worsening mental health among children and young adults. Youth psychological well-being is important to examine from an academic perspective, but it is also important to understand from a humanitarian perspective. The youth generation holds so much promise to contribute to society as a whole.

Anxiety and Depression

College students consistently report higher levels of depression than the 12.9% reported in the general population (Eisenberg et al., 2007; Ibrahim et al., 2013; Lim et al., 2018). Review of surveillance data indicates that approximately one quarter of youth ages 18 and older have evidence of a mental health disorder (Kessler, Chiu, Demler et al., 2005). Approximately, 50% of all serious adult psychiatric illnesses, including major depression, anxiety disorders, and substance abuse, initiate as early as 14 years old (Kessler, Berglund, Demler, 2005). These findings have important implications. Indeed, mental health problems among college students can negatively affect quality of life, decrease physical health, and wellbeing, and impede academic success (Gallagher, 2014; Brieler, Scherrer, & Salas, 2015; Yozwiak, Lentzsch-Parcells, & Zapolski, 2012).

In the immediate aftermath of the Covid-19, depression and anxiety are two rising factors (Hager, 2022). A well-established body of research indicates that depression and anxiety are associated with decreased grade point average, acute

infectious illness, increased alcohol consumption, smoking, increased self-injurious behaviors, withdrawal from college, suicidal ideation, and suicide (Buchanan, 2012; Eisenberg, Golberstein, & Hunt, 2009). Poor mental health is also associated with increased risk for attrition (Megivern et al., 2003) with a 21% increase in the number of students indefinitely discontinuing their studies due to poor mental health in the last four years (Hubble and Bolton, 2020).

Self-Harm

Correlated with depression and anxiety are self-harming behaviors that are exhibited by college students (Gao, 2021). Self-harm or non-suicidal self-injury (NSSI) involves the intentional and direct injuring of one's own body tissue without suicidal intent (Klonsky and Olino, 2008). NSSI is prevalent in the United states and is estimated at about 6% in the general population. The median age of onset is 14 years, with higher rates of NSSI among people younger than 30 (Klonsky, 2011). Cutting, scratching, burning, and biting rank among the most common ways to hurt oneself, particularly among young adults (Hawton et al., 2012; Turecki & Brent, 2016). NSSI is an external expression of anxiety and depression and a precursor to suicide attempts and completions (O'Connor and Nock, 2014). While NSSI have typically been conceptualized as a symptom of mental disorders, there is now increased awareness that NSSI may not be symptomatic of any particular disorder and that this constellation of behaviors should be conceptualized as a behavior that warrants research as its own psychopathological behavioral profile (Gao, 2021). Although the prevalence, severity, and overall burden of mental health conditions among college students in the U.S. has

been documented in the scientific literature (Downs et al., 2018; Liu et al., 2019), there is limited information regarding the association between NSSI among college students with and without diagnosed mental health conditions and/or mental health symptoms. Identifying college students that may be at increased risk of NSSI is a crucial public health imperative. Despite the uptick in interest by professionals across a spectrum of disciplines, it is not entirely clear how widespread and pervasive this behavior is among young adult college students (Sivertsen et al. 2019).

Sociodemographic Factors: Sexual as a Biological Variable, Sexual and Gender Minorities, and Racial/Ethnic Differences

Sex. The role of sex as a biological variable and sexual orientation in mental health problems are important considerations. For example, a consistent body of research has found that women with anxiety disorders are more likely to internalize emotions, which typically results in depression (American Psychological Association, 2011). However, men are more likely to externalize their negative affect through aggression and other acting-out behavior. Findings regarding sex differences in NSSI suggest that it is substantially higher among females (Laye-Gindhu & Schonert-Reichl, 2005; Hawton, Rodham, et al., 2002), but an equally compelling body of research suggests that there are no meaningful sex differences (Muchlenkamp & Gutierrez, 2007; Gollust, Eisenberg, & Golberstein, 2008).

Sexual and Gender Minorities. Sexual and gender minority populations have been identified as especially at-risk for a variety of negative mental health outcomes (Pakula, Shoveller, Ratner, & Carpiano, 2016). Furthermore, one meta-analysis

indicates that the prevalence of NSSIs are elevated among sexual and gender minority people compared to heterosexual people (Liu et al., 2019). There is a growing body of research to suggest that mental health problems have increased substantially among college students in the aftermath of the COVID-19 pandemic (Abrams, 2022). It is reasonable to assume that NSSIs would have also increased over this time period, but few studies have examined this behavioral phenomenon. This represents an important gap in the extant literature. Furthermore, more research is needed to more comprehensively understand how NSSI varies by sociodemographic status especially with regard to race, gender, and sexual orientation.

Race and Ethnicity. Too few studies examine mental health in racial and ethnically diverse young adult populations. One large epidemiologic study with a diverse sample found that greater than 60% of students met criteria for one or more mental health problems. American Indian/Alaskan Native students experienced the largest increases in depression, anxiety, suicidal ideation, and surpassing threshold for at least one mental health problem. These findings have important implications for campus mental health programming and underscore the urgency of reducing mental health inequalities in college student populations through the identification and implementation of best practices both in clinical settings and through system-level, universal programmatic change on college campuses. A recent and widely-cited meta-analysis offers evidence to suggest that although the majority of the studies reviewed reported higher prevalence of NSSI among non-Hipandic White youth, evidence suggests that African American males are also at risk of engaging in self-harm (Rojas-Velasques et al., 2021) and although racism and discrimination were not linked to NSSI in the studies

reviewed, these structural issues have been implicated in a number of problems that minorities face while attending college.

Flourishing

In the immediate aftermath of the COVID-19 pandemic, there is increasing severity and prevalence of mental illness among college students (Abrams, 2022). University counseling centers are mounting increased efforts to address the needs of their diverse student bodies. However, in addition to efforts to support students with mental illness, an emerging body of evidence suggests a need to address mental health–related issues among the broader college student population. Indeed, colleges are under increasing pressure to support and produce graduates who are holistically healthy and have mastered the knowledge, skills, and resiliency necessary to address contemporary problems of an increasingly complex society.

An important outcome of interest in the present study is psychological well-being or mental health has been extensively examined by Keyes and is operationalized using Keyes' mental health continuum (Keyes, 2002; Keyes, 2007). Keyes conceptualized mental health as a continuum which reflects emotional, psychological, and social well-being. Consistent with definitions of mental health as more nuanced than the sole absence of mental illness (Seligman & Csikszentmihalyi, 2005), it is important for any examination of mental health among college students to look at this mental health more broadly. The emotional well-being domain describes individuals' positive affect (i.e., cheerful, happy, peaceful) and generalized satisfaction with life. An individual who expresses psychological well-being can be described as finding meaning in life and

seeking personal development, and is motivated to maintain positive relationships with others. Related research suggests that a number of predictors of flourishing include faith, life purpose, optimism, academic self-efficacy, importance of community service, alcohol and substance abuse, physical health, exercise, and nutrition (Low et al., 2011; Howell, 2009). In one study, Peter et al (2011) conducted a multivariate analysis and found that depressive symptoms were among the strongest *negative* predictors of flourishing. Flourishing is an important consideration in any examination of psychological well-being among college students.

Purpose of Study

A primary objective of the present study is to examine the prevalence, correlates, and predictors of various indices of mental health and young adult college students. Specifically, we examine inequalities in anxiety and stress across gender, and race/ethnicity. We also examine mental health more holistically with the inclusion of flourishing indices.

Analysis

Frequencies and percentages were used to describe the sample. One-way analysis of variance (ANOVA; for categorical independent variables) with Bonferroni multiple comparison tests to identify statistically significant pairwise differences were also used. Finally, we conducted multiple linear regression to examine the extent to which sociodemographic factors and mental healthcare utilization predicted changes in

perceived stress, anxiety, non-suicidal self-injury, and flourishing. All analyses were conducted using SPSS version 10.0

METHODS

Participants and procedures

The participants for this study were 65 college students. Participants were recruited on a voluntary basis from an introductory psychology class and the psychology participants pool during the Spring of 2023. Participants were incentivized with research credit from their class or the subject pool. Students declining invitations to participate were given alternative opportunities of equal credit value. The SUNY Purchase College Institutional Review approved this study.

This study involved obtaining consent for completing a 72-item (about thirty minutes in length) survey. The survey was used to assess indices of mental health among college students. Participants completed the survey via *Google Forms* from March 24th through April 8th. The survey contained questions regarding anxiety, depression, non-suicidal self-injury, gender, and race. Before the students were given access to the survey questions, participants completed a consent form informing them about the sensitivity of the questions to follow. The consent form included text indicating that students should exit the survey without penalty if any questions were triggering. At the completion of the survey, information about mental health resources was provided.

The sample included students from 18 to 22 years old (mean age = 19.72; standard deviation [SD] = 1.61). Students (Table 1) were enrolled as first-years (40.0%), sophomores (26.2%), juniors (12.3%), and seniors (21.5%). Most students

were White (36.9%). The remaining students were Black (24.6%), Asian or Pacific Islander (10.8%), Middle Eastern (1.5%) and/or Hispanic (24.6%). Most identified as women (66.7%). Men comprised the second largest group (21.0%) and 10.8% of the sample self-identified as either non-binary, gender queer or gender fluid hereafter referred to as 'gender diverse.'

Measures

Participants were asked to complete a battery of measures. The demographics section assessed age, gender, race, year in college, and counseling knowledge/use. Other questionnaires assessed: 1) depression, 2) anxiety, 3) non-suicidal self-injury; and, 4) flourishing.

Demographics: The four sociodemographic variables were age, year in college, gender (male, female, non-binary, gender queer, and gender fluid), and race/ethnicity (Black or African American, Hispanic Latino, Asian, Indigenous/American Indian, Native Hawaiian or Pacific Islander, Middle Eastern, and White).

Patient Health Questionnaire-9 (PHQ-9): The PHQ-9 is the nine-item depression scale of the patient health questionnaire. The nine questions of the PHQ-9 are based directly on the nine diagnostic criteria for major depressive disorder in the DSM-IV (The Diagnostic and Statistical Manual of Mental Disorders). Scores of 0-4 indicate non-minimal depression severity, scores of 5-9 are categorized as mild, scores of 10-14 are moderate, scores of 15-19 are moderately severe and scores of 20-27 would be severe depression (Kroenke, 2001).

Generalized Anxiety Disorder: The Generalized Anxiety Scale (GAD-7) assesses generalized disorder systems (Spitzer, Kroenke, & Williams et al., 2006), with good validity and reliability among college samples (Duffy, Wenge & Joiner, 2019). Participants answered seven questions about symptoms in the past month including “feeling nervous, anxious, or on the edge” and “trouble relaxing” on a scale of 0 (not at all) to 3 (severely, it bothered me a lot). Scores can range from 0 to 21, with five indicating mild anxiety, 10 indicating moderate anxiety, and 15 or higher indicating severe anxiety (Spitzer, Kroenke, & Williams et al., 2006). A sample of college students (Byrd-Bredbenner, Eck, & Quick, 2020) confirmed validity and reliability (alpha = 0.90) of the GAD-7 in this population. Before data analysis, all outcome data were inspected for outliers and normality. Indices of skewness and kurtosis were within normal limits.

Non-Suicidal Self-Injury (NSSI): NSSI involves aimless, purposeful destruction of one's own bodily tissue without suicidal intent. The NSSI survey includes 10 items and each behavior is given a score on a 6-point Likert scale, with 0 being "Never" and 5 being "Severe." Stronger scores indicate greater psychological impact of NSSI, with a composite score ranging from 0 to 50 once the items are added together. Stronger scores indicate greater psychological impact of NSSI, with a composite score ranging from 0 to 50 once the items are added together. Body piercings and tattoos are not considered NSSI unless they were done with the intent to injure oneself.

Flourishing Scale: The Flourishing Scale consists of eight items describing important aspects of human functioning ranging from positive relationships, to feelings of competence, to having meaning and purpose in life. Each item is answered on a 1–7 scale that ranges from Strong Disagreement to Strong Agreement. All items are

phrased in a positive direction. Scores can range from 8 (Strong Disagreement with all items) to 56 (Strong Agreement with all items). High scores signify that respondents view themselves in positive terms in important areas of functioning. Although the scale does not separately provide measures of facets of well-being, it does yield an overview of positive functioning across diverse domains that are widely believed to be important.

Mental healthcare utilization: With 'yes' or 'no' response options, three questions including 1) have you been exposed to any mental health resources; 2) have if yes, have you used any of these resources; and 3) were you satisfied with this kind of counseling.

RESULTS

The mean (M) PHQ-9 score in this sample was 1.64 with a SD of 0.78; the GAD-7 mean was 2.02 with a SD of 0.72; the NSSI mean was 0.85 with a SD of 1.74; and the mean of Flourishing was 1.72 with a SD of 1.28.

Group Differences in PHQ-9, GAD-7, NSSI, and Flourishing

Means, SDs, and group differences are presented in Table 2. Although there were no statistically significant differences, we conservatively interpret trends for depression as measured, in turn, by the PHQ-9, anxiety as measured by the GAD-7, self-harming behavior as measured by the NSSI, and flourishing as measured by the Flourishing Scale.

Depressive symptoms. Although there were no significant differences for year-in-college, there was a trend for seniors and juniors to report more depression symptoms than sophomores and first-year students. White and Hispanic students tended to report more depression symptoms than students of other racial categories. There were no discernable trends with regard to gender.

Anxiety symptoms. There were several important linear trends in anxiety symptoms. Seniors tended to report more anxious symptoms than juniors, sophomores, and first-year students in that order. White students tended to report more symptoms across all other racial categories. There were no discernable trends according to gender.

Non-suicidal self-injury. There was a minor trend for seniors to report more self-harm than less senior students. Blacks and Hispanics reported slightly more self-harming behavior than students from other racial categories. A clear, though not significant, trend was apparent for gender with male students reporting four times (0.36 vs 1.43) less self-harming behavior than those who self-identified as gender diverse.

Flourishing. There was a trend for juniors to endorse indices of flourishing (e.g., I am engaged and interested in my daily activities). The differences by racial/ethnic and background and gender were very slight and not interpretable.

To better understand the associations between the primary outcome variables and the predictor variables, we conducted bivariate analysis using Pearson correlations. Some marginal and statistically significant findings emerged (Table 3). Specifically, there was a marginally significant correlation between depressive symptomatology and year-in-college that is more matriculation was associated with more depressive

symptoms. Anxiety was marginally associated with age and significantly associated with year-in-college (r = 0.25, p. <0.05) and healthcare utilization (r = 0.26, p. <0.05). A multivariate linear regression with anxiety as the outcome and the sociodemographic variables and health care utilization as predictor or independent variables yielded a model that accounted for 26% of the variance in anxiety where White students had a 63% increase in odds of anxiety than their non-White counterparts. However, we interpret this finding with caution as it approached, but did not reach significance (p = 0.09). The analysis also revealed that students who sought mental healthcare resources were nearly 70% lower odds of being satisfied with the counseling they received. This finding is also interpreted with caution with a p-value = 0.06.

DISCUSSION

In the United States, attending college is available to a vast majority of the population. This wide-scale accessibility to college, due in part to grants and subsidized loan programs, was not always the case as many socio-demographic groups were prohibited from college matriculation because of racial segregation and low socioeconomic status. In the past several decades, the American college student body has become substantially more diverse. Students from any socio-demographic and economic backgrounds have access to higher education. Today, there is also more diversity in terms of academic preparedness. All of these changes have coincided with increasing rates of mental health problems among college students.

The college years offer students an opportunity to grow and mature into young adults oftentimes with substantially less supervision and monitoring from parents,

caregivers, and other authority figures. This newfound freedom can be good for development, but it can also be stressful for emerging adults (Keyes et al., 2012). Often, they are faced with new responsibility coupled with newly acquired autonomy across multiple life domains such as educational, professional, familial, and romantic (Jessor et al., 1991; Bachman et al., 1996; Boles et al., 1999; Arnett et al., 2000). It is routinely estimated that approximately 75% of all mental health conditions have their first presentation during the early adult time period (Kessler et al., 2007) and as such, we examined young adults' psychological well being in a diverse sample of college students.

Some studies have shown some consistent risk factors associated with these psychological problems. In the present study, we did not find that students had the highest levels of depression and anxiety symptoms, but they did however self-report more than than minimal levels of the mental health outcomes. Symptoms of depression and anxiety were higher among junior and senior students–a finding consistent with what others have found (Shamsuddin et al., 2013; Jones et al., 2022). Aysan (2001) found that juniors had higher reactions to stress than the seniors probably due to the difficulty in adjusting to increasing responsibility and expectations with age. Though these findings did not reach statistical significance, they are clinically relevant. Other demographic variables also had some explanatory value. For instance, White students tended to report slightly higher depression and anxiety symptoms. Although we had no specific a priori hypotheses regarding race, we did informally expect that minority students would have experienced more depression and anxiety symptoms as the Minority Stress Model (Hendricks & Testa, 2012) suggest that social situations do not

lead directly to poor health for minority individuals, but that difficult social situations cause stress for minority individuals, which accrues over time, resulting in long-term health deficits. Our finding is not supported by some studies that minority ethnic groups may predispose to these psychological distress (Dyrbye et al., 2007), but is consistent with a recent study that also found in a college sample that White students had the highest level of anxiety (Hoyt et al., 2021).

Despite the fact that many colleges and universities are increasingly including risk assessment for mental health problems (Harrer et al., 2018), NSSIs are often overlooked. This is a missed opportunity because NSSI onset peaks in mid-adolescence (Plener et al., 2019) and peaks again around the age of 20 (Gandhi et al., 2018). In the present study, the overall rate of non-suicidal self-injury was less than one percent–although students who self-identified as gender diverse (i.e., non-binary, gender queer, and gender fluid) reported self-harming behavior nearly three times the rate of male and female students.

Increasingly students recognize the importance of a holistic approach to health that involves not merely the absence of mental health problems, but also the inclusion life purpose, optimism, academic self-efficacy, importance of community service, alcohol and substance abuse, physical health, exercise, and nutrition (Low et al., 2011; Howell, 2009). In the present study, there were no significant associations between flourishing and negative mental health outcomes; however, there was a slight trend for juniors to report more flourishing attitudes and behaviors than any other demographic.

Strengths and Limitations

In the aftermath of the Covid-19 pandemic, this study is among the first to examine indices for poor mental health as well as those of psychological well-being (i.e., flourishing). This study also holds significance in its examination of the influence of mental healthcare utilization on mental health outcomes. The diversity of the sample was another important strength with a sample that included college students at different points of matriculation (first-year though seniors) and those that self-identified as cisgender as well as gender diverse (non-binary, gender queer, and gender fluid).

Although this study has a number of strengths, there are important limitations that should be noted. First, the cross-sectional design does not allow for the potential to make any causal inferences. Therefore, we can only make tentative statements about the association between the predictor explanatory variables and the mental health outcomes. Second, to achieve at least 80% power given an expected population *rho* of 0.4, the minimum sample size is 46 observations. Our sample size was only slightly above the minimum though many findings were in the correct direction. The analysis may not have been sufficiently powered. The sample also had too few male students. A future study will oversample men. Third, we did not examine the impact of the Covid-19 pandemic on wellbeing. This is important because the pandemic might have sleeper effects (i.e., pandemic related stress that is not immediately observed until some later period of development) and sensitizing effects (i.e., pandemic experiences trigger psychopathology among vulnerable students). Finally, we did not assess financial status. A well-established body of research indicates that financial stress has a significant impact on students' mental wellbeing.

Conclusion

As colleges and universities address the mental health epidemic among their students, they should consider who is most at risk, how prevalence rates vary by sociodemographic variables, and how policies and interventions must change to meet the needs of a diverse student body population. The results of this study have the potential to influence how administrators and decisionmakers allocate university resources for monitoring and supporting student psychological health and wellbeing.

Table 1. Study sample demographic characteristics		
Measure	%	N
College in April 2023		
First Year	40.0	26
Sophomore	26.2	17
Junior	12.3	08
Senior	21.5	14
Race/ethnicity		
White	36.9	24
Black	24.6	16
Asian/Pacific Islander	10.8	7
Middle Eastern	1.5	1
Hispanic	24.6	16
Gender		
Woman	66.7	44
Man	21.5	14
Gender Diverse	10.8	7

Table 2. Group Differences in PHQ, GAD, NSSI, and Flourishing				
	PHQ	GAD	NSSI	Flourishing
College in April 2023	*F* = 1.13 (3,64) *p.* = 0.34	*F* = 1.38 (3,64) *p.* = 0.26	*F* = 0.18 (3,64) *p.* = 0.91	*F* = 0.35 (3,64) *p.* = 0.79
First Year	1.52 (0.86)	1.86 (0.85)	0.88 (0.85)	1.79 (1.11)
Sophomore	1.54 (0.81)	1.97 (0.66)	0.59 (0.66)	1.52 (1.32)
Junior	1.67 (0.62)	2.07 (0.45)	1.00 (1.93)	2.05 (1.32)
Senior	1.96 (0.62)	2.33 (0.60)	1.00 (2.18)	1.64 (1.54)
Race/ethnicity	*F* = 0.75 (5,64) *p.* = 0.59	*F* = 0.71 (5,64) *p.* = 0.62	*F* = 0.40 (5,64) *p.* = 0.84	*F* = 0.61 (5,64) *p.* = 0.70
White	1.73 (0.77)	2.17 (0.65)	0.67 (1.24)	1.72 (1.28)
Black	1.46 (0.88)	1.94 (0.78)	1.25 (2.41)	1.59 (1.17)
Asian/Pacific Islander	1.51 (0.62)	1.71 (1.05)	0.43 (0.79)	1.90 (1.10)
Middle Eastern	1.00 (0.00)	1.71 (0.00)	0.00 (0.00)	1.64 (1.54)
Hispanic	1.82 (0.00)	1.98 (0.63)	1.00 (2.03)	0.00 (0.00)
Gender	*F* = 0.18 (2,64) *p.* = 0.84	*F* = 0.04 (2,64) *p.* = 0.96	*F* = 0.97 (2,64) *p.* = 0.39	*F* = 0.37 (2,64) *p.* = 0.69
Man	1.59 (0.85)	2.00 (0.85)	0.36 (0.84)	1.46 (1.07)
Woman	1.67 (0.77)	2.03 (0.67)	0.91 (1.72)	1.78 (1.26)
Gender Diverse	1.50 (0.76)	1.96 (0.86)	1.43 (2.94)	1.88 (1.81)

Table 3. Correlations between predictors and mental health outcomes				
	PHQ	GAD	NSSI	Flourishing
Age	0.17	0.22^{+}	-0.01	-0.01
Year in College	0.24^{+}	0.25*	0.04	-0.02
Race/Ethnicity	0.07	0.15	-0.12	-0.05
Gender	-	-	0.17	0.10
Healthcare Utilization	0.18	0.26*	0.10	0.03
$^{+}$ p <0.10; * p <0.05				

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Appendix A

Informed Consent Form

Researcher: Helen Noboa
Sponsor: Chris Williams, Ph., MPH

Contacts:
Student researcher: helen.noboa@purchase.edu
Faculty researcher: c-1.williams@purchase.edu

Purpose: We would like your consent to participate in a research study that involves taking a single 30-minute online survey**.** This study investigates mental health and the use or lack of mental health resources in college students.

Procedure: This study/questionnaire involves answering approximately 72 questions. The duration of the study is about thirty minutes. The survey contains personal questions regarding anxiety, depression, eating disorders, non-suicidal self-injury, gender, and race. Students willing to participate must be 18 years old or older and must attend SUNY Purchase.

Costs, risks, and discomforts: The survey contains some personal and sensitive questions. If any question causes you to feel distressed, you can end your participation and opt out of the study at any time. Should this happen, all data we have collected from you will be deleted. Information for the campus counseling center will also be provided. Participants who exhibit signs of wanting to hurt themselves or others will have their questionnaire given to the faculty sponsor by the student researcher, who may then ask you additional questions, offer you treatment referrals, collaborate with you to speak with a trusted family member, friend, or therapist about your harmful thoughts, or collaborate with you on a plan that might involve getting you to a medical facility for safety.

Benefits and compensation: The general benefit of participating in scientific research is the satisfaction that comes from contributing to science and the pursuit of knowledge. As a result of your participation, you will be compensated for your time with extra credit. If for any reason you opt out of the study/questionnaire before the half-hour is complete, you will not be penalized from receiving extra credit.

Confidentiality: We will keep your survey responses confidential. The aggregate results for this study may be presented at a conference or published in a scholarly book or journal, but your data will not be directly identifiable. Your individual responses will only be attached to your randomly created participant ID number and therefore, will not be identifiable. Your names and personal information will not be used. If you need to leave the study prior to completing it, let the moderator know and they will allow you to.

Refusal or withdrawal of participation: You are not required to participate in this study. If you decide to participate, you can change your mind and drop out at any time without affecting your present or future interactions with the student or faculty researchers and with no loss of credit for participation.

Signature: I confirm that the purpose of the research, the study procedures, and the possible risks and discomforts as well as potential benefits that I may experience have been explained to me. All my questions have been answered. I have read this consent form. My signature below indicates my willingness to participate in this study. I understand that I may contact the Chair of the Institutional Review Board, Dr. Alexia Toskos if I experience any problems during this experiment or have concerns about the ethics of this research (irb.chair@purchase.edu).

☐ By checking this box you are indicating your consent to participate in this study.

Appendix B

Debriefing Form

The research study/questionnaire you just participated in was part of a student researcher's investigation on mental health and the use or lack of mental health resources in college students. Your answers will not be attached to your names, but to your participant identification number. Only the researcher and their faculty sponsor can access the file that connects your name to your participant ID number. The reason that your name will be kept at all is that you can contact any of the researchers or their faculty sponsor at any time after the experiment to ask that your answers and information be taken out of the experimental results.

If you have any questions and if you feel any negative effects from your participation in this study/questionnaire, feel free to contact any of the following individuals or groups with those concerns:

Student Researcher
Name: Helen Noboa
E-mail: helen.noboa@purchase.edu

Faculty Sponsor
Name: Christopher Williams, Ph.D., MPH
E-mail: C-1.williams@purchase.edu

SUNY Purchase College Counseling Center: (This phone number and email address are NOT for emergency contact. For emergencies please contact University Police at 914-251-6911)

Phone: (914) 251-6390
E-mail: COU.counseling.center@purchase.edu

Appendix C

Demographics Questionnaire

Age_____

Gender_____

Year in College _____

Have you been exposed to any Mental health resources? _Yes _No

If “yes” have you used any of these resources? _Yes _No

Were you satisfied with this kind of counseling? _Yes _No

Appendix D

GAD-7

Over the last two weeks, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as in something awful might happen	0	1	2	3

Column total _____+_____+_____+_____= Total Score: _____

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

___Not difficult at all ___Somewhat difficult ___Very difficult ___Extremely difficult

Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of “not at all,” “several days,” “more than half the days,” and “nearly every day.”

GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety, 5–9: mild anxiety, 10–14: moderate anxiety, 15–21: severe anxiety

Appendix E

The Flourishing Scale

Below are 8 statements with which you either agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by indicating that response for each statement.

7 – Strongly agree
6 – Agree
5 – Slightly agree
4 – Neither agree nor disagree
3 – Slightly disagree
2 – Disagree
1 – Strongly disagree

_____I lead a purposeful and meaningful life

_____My social relationships are supportive and rewarding

_____I am engaged and interested in my daily activities

_____I actively contribute to the happiness and well-being of others

_____I am competent and capable in the activities that are important to me

_____I am a good person and live a good life

_____I am optimistic about my future

-If your score is LOW you're definitely not flourishing. Our advice is to seek assistance immediately either through your GP or professional psychologist.
-If your score is MID-RANGE – your well-being is average. Be proactive, seek help, and move towards a flourishing life.
-If your scores are HIGH – keep it up! You're doing well but you may want some professional assistance in maintaining it.

Appendix F

SCOFF Questions

Do you make yourself Sick (induce vomiting) because you feel uncomfortably full?

Do you worry that you have lost Control over how much you eat?

Have you recently lost more than One stone (14 lb [6.4 kg]) in a three-month period?

Do you think you are too Fat, even though others say you are too thin?

Would you say that Food dominates your life?

One point for every yes answer; a score of 2 indicates a likely case of anorexia nervosa or bulimia nervosa (sensitivity: 100 percent; specificity: 87.5 percent).

Appendix G

Non-Suicidal Self-Injury (NSSI) Student Questionnaire

1. Have you ever done any of the following *with the purpose of intentionally hurting yourself?*

   _ Severely scratched or pinched with fingernails or other objects to the point that bleeding occurs or marks remain on the skin
   _Cut wrists, arms, legs, torso or other areas of the body
   _ Dripped acid on to skin
   _Carved words or symbols into the skin
   _ Ingested a caustic substance(s) or sharp object(s) (Drano, other cleaning substances, pins, etc)
   _ Bitten yourself to the point that bleeding occurs or marks remain on the skin
   _ Tried to break your own bone(s)
   _ Ripped or torn skin
   _ Burned wrists, hands, arms, legs, torso or other areas of the body
   _ Rubbed glass into skin or stuck sharp objects such as needles, pins, and staples into or underneath the skin (not including tattooing, body piercing, or needles used for medication use)
   _ Banged or punched objects to the point of bruising or bleeding
   _ Punched or banged oneself to the point of bruising or bleeding
   _ Intentionally prevented wounds from healing
   _ Engaged in fighting or other aggressive activities with the intention of getting hurt

2. Are there any other ways that you have physically hurt or mutilated your body with the purpose of intentionally hurting yourself?

__ Yes – Please specify _____
__ No

2. How true are the following statements about ***WHY*** you hurt yourself?

I hurt myself ...	Strongly Disagree (1)	Somewhat Disagree (2)	Somewhat Agree (3)	Strongly Agree (4)
...to feel something				
...because my friends hurt themselves				

...as a self-punishment				
...to get a rush or surge or energy				
...to deal with frustration				
...to cope with uncomfortable feelings (i.e. depression, anxiety)				
...in hopes that someone would notice that something is wrong or so that others will pay attention to me				

I hurt myself ...	Strongly Disagree (1)	Somewhat Disagree (2)	Somewhat Agree (3)	Strongly Agree (4)
...so I do not hurt myself in other ways				
...because it feels good				
...to deal with anger				
...to get control over myself or my life				
...to shock or hurt someone				
...to avoid killing myself				
...because I get the urge and cannot stop it				
...to relieve stress or pressure				
...to change my emotional pain into something physical				
...because of my self-hatred				
...because I like the way it looks				
...as a way to practice suicide				
...as an attempt to die				
Other, please describe:				

3. When was the last time you intentionally hurt yourself in one of the ways listed above?
    - Less than a week ago
    - Between 1 week and 1 month ago
    - Between 1 and 3 months ago
    - Between 3 and 5 months ago

- Between 6 months and 1 year ago
- Between 1 and 2 years ago
- More than 2 years ago

4. How likely are you to intentionally hurt yourself again?
    - Very likely
    - Somewhat likely
    - Not sure
    - Somewhat unlikely
    - Very unlikely

5. Who knows that you intentionally hurt yourself?_____

Appendix H

Patient Health Questionnaire (PHQ-9)

Over the last *2 weeks,* how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
		add columns	+	+
		TOTAL:		

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).

10. If you checked off *any problems,* how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all _____ Somewhat difficult _____ Very difficult _____ Extremely difficult _____

For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

Consider Major Depressive Disorder

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

Consider Other Depressive Disorder

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

Note: Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.

Diagnosis of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

Scoring: add up all checkboxes on PHQ-9

For every ✓ Not at all = 0; Several days = 1;

More than half the days = 2; Nearly every day = 3

Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression