

7-12-2021

An intersectional approach to understanding the correlates of depression in college students: Discrimination, social status, and identity

Miranda Worthen
San Jose State University, miranda.worthen@sjsu.edu

Justin Menchaca
San Jose State University

Michelle Laine
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/faculty_rsca

Recommended Citation

Miranda Worthen, Justin Menchaca, and Michelle Laine. "An intersectional approach to understanding the correlates of depression in college students: Discrimination, social status, and identity" *Journal of American College Health* (2021). <https://doi.org/10.1080/07448481.2021.1926261>

This Article is brought to you for free and open access by SJSU ScholarWorks. It has been accepted for inclusion in Faculty Research, Scholarly, and Creative Activity by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

**An intersectional approach to understanding the correlates of depression in college
students: Discrimination, Social Status, and Identity**

Miranda Worthen, PhD
San José State University

Justin Menchaca,
San José State University

Michelle Laine,
San José State University

Corresponding Author: Miranda Worthen. E-mail: miranda.worthen@sjsu.edu

Abstract

Objective: We assessed the impact of bearing multiple marginalized identities, experiencing discrimination and perceived social status on the prevalence of depression in college students using an intersectional approach.

Participants: Public health students at a diverse urban public university in Northern California (N=338, response rate = 85%; 77% women, mean age 22).

Methods: We used a cross-sectional survey to assess demographics, depression, discrimination and social standing using validated scales and estimate the relations between depression and co-factors.

Results: 25.4% of students reported depression. Discrimination was associated with a higher level of depression and more severe symptoms. Higher perceived social status was associated with a lower level of depression and less severe symptoms. Hispanic/Latinx first generation women had three times the prevalence of depression as non-Hispanic/Latinx non-first generation men and there was a significant disparity in depression severity.

Conclusions: Intersectional approaches can shed light on the experiences of marginalized groups.

Keywords: depression, discrimination, socioeconomic status, Hispanic/Latinx, intersectionality

Introduction

Depression is the leading cause of disability worldwide and one of the most common mental health problems in the United States (U.S.).^{1, 2} Depression is most prevalent among 18 – 25 year-olds¹ and college students are considered a high risk population.³ The American College Health Association – National College Health Assessment for Spring 2019 found 46.2% of college students reported feeling so depressed that it was difficult to function in the previous 12 months, with 17.5% reporting this experience in the last two weeks.⁴ A systematic review of studies on depression in University students from 1990 – 2010 found the prevalence of depression varied widely across campuses and time.⁵ Depression is a major concern to college campuses not just because of the morbidity of depression itself, but also because depression is associated with poorer health outcomes,⁶ academic struggles,⁷⁻⁹ risky behaviors,^{10, 11} and suicide.¹²

One of the largest population-based studies of college student mental health is The Healthy Minds Study, an annual survey of randomly selected students on 60 campuses. This study reports minimal difference in the prevalence of depression by gender, with 16.8% of women and 16.7% of men experiencing depression,¹³ though other large and small studies of college students and young adults have found that women have higher rates of depression than men.^{5, 14}

The Health Minds Study found a higher prevalence of depression among racial and ethnic minority students compared to White students.¹³ While these results have not been consistently found in single-campus smaller studies, these studies are often underpowered to detect small differences.¹⁵⁻¹⁸ One of the hypothesized causes for this disparity in depression among minority students is the experience of discrimination. Studies across campus contexts have richly described students' experiences of discrimination and the contribution of those experiences to

mental health.¹⁹⁻²¹ Studies have found that reporting more severe discrimination is associated with more depressive symptoms in Muslim,²² Asian American and Pacific Islander,²³ African American,^{24, 25} and Latinx students.^{26, 27} Among U.S. adults, discrimination is strongly associated with depression.²⁸⁻³⁰

Conceptual models explaining this association identify not only the direct effect of discrimination causing psychological distress and depression, but also indirect pathways: experiencing discrimination changes health behaviors which can lead to depression and discrimination produces a physiologic process of heightened arousal leading to increased allostatic load that increases the risk for depression.²⁹ The minority stress model offers a theoretical framework to identify and act to mitigate the additional stress that members of marginalized groups experience because of the prejudice and discrimination they face in different settings.²⁶ Applied to the university context, in addition to racial and ethnic minority status, students may have multiple other identities that increase their risk of discrimination (i.e. sexual orientation, gender identity, disability) or visibly or invisibly mark them as “non-traditional,” such as being first generation.^{13, 31-34} Intersectionality is a framework that seeks to infuse complexity into understandings of and efforts to mitigate discrimination, recognizing that inhabiting a position at the nexus of multiple inequities (e.g. race/ethnicity, generation status, and gender) can compound the negative effects of marginalization.³⁵ Qualitative studies with college students have shown intersectionality to be a useful framework to capture multiple and diverse experiences of discrimination and their impacts on mental health,³⁶⁻³⁹ scant quantitative research has explored these relations in college student populations.^{40, 41}

An additional factor that may be important to consider is socioeconomic status. There is a growing literature documenting the association between subjective socioeconomic status and

health, including mental health.⁴²⁻⁴⁵ Studies in clinical samples of U.S. adults⁴⁶ and The Whitehall II study of adults in the U.K.⁴⁷ have found a negative association between subjective socioeconomic status and symptoms of depression – those with a higher subjective socioeconomic status have a lower prevalence of depression. To our knowledge, no prior studies have examined this association in college students.

This study aimed to assess the prevalence of depression in college students within the context of a large, socioeconomically, racially, and ethnically diverse public University. First, we sought to assess the impact of ethnicity, first generation status, and gender on depression and how these identities may intersect to increase the risk of depression. Applying an intersectional framework, we hypothesize that occupying multiple social positions that frequently come into conflict with dominant norms of institutions of higher education (e.g. being an Hispanic/Latinx first generation woman when the dominant norms reflect the values of white, upper-class men) may increase the risk of depression.⁴⁸ Second, we aimed to directly assess the association between discrimination, perceived socioeconomic status and depression.

We conceptualize any differences we find between identity groups as attributable to historical and contemporary policies, laws, and practices that systematically disadvantage groups with respect to one another and may be designed intentionally or unintentionally.⁴⁹ These discriminatory policies, laws, and practices may operate on outcomes directly or may operate through indirect pathways, such as through economic disadvantages that shape income, occupational status, access to quality education, and wealth and have intergenerational consequences.

Materials and Methods

The Institutional Review Board of the University where this study took place approved the study protocol, which was a collaboration between a faculty member (first author) and undergraduate students (second and third authors). This participatory study grew out of a course-embedded undergraduate research experience, and was developed specifically to explore factors associated with depression salient to the student researchers and within their peer network of undergraduate upper division public health majors. Prospective study participants were invited by peer student researchers (second and third authors) to complete a six-page survey during class in February 2018. A notice of consent was provided on the first page stating that participation was voluntary and a list of supportive campus and off-campus services was attached on the last page of the survey, which students were encouraged to tear off and keep. The survey included questions on demographics, social experiences, and depression and took about five minutes to complete. All students in each course visited by the peer researchers were invited to take the survey, regardless of eligibility. There were no incentives to complete the survey, but to show appreciation for everyone's time all students were offered healthy snacks, such as fruit and granola bars, regardless of whether they completed the survey.

paper surveys were stored securely and data were double entered into Qualtrics and checked for discrepancies. Analyses were conducted using STATA 12.⁵⁰

Study Sample

The study aimed to represent all undergraduate Public Health majors with Junior or Senior (“upper division”) standing at a large diverse urban university in Northern California during spring 2018. University records indicated 509 students in this eligible population. By examining class rosters, we identified a sampling frame of 397 students enrolled in at least one of six major

courses during this semester, creating a purposive sampling frame that represented 77% of the known target population. This purposive sampling frame excluded 34 eligible students enrolled in a public health course but not enrolled in one of the six targeted classes. The remaining 78 eligible students not in the sampling frame but in the target population may only have been enrolled in non-major classes or not currently registered. Peer researchers obtained permission from instructors of these six classes to visit their class and invite classmates to take the paper survey during class time. From these six class visits, we obtained a sample of 363 completed surveys. Of these, 25 surveys were excluded because the student was not eligible for our study (non-public health major or lower division), leaving 338 surveys completed by eligible students. Thus, our response rate was 85% ($338/397 = 0.85$). The demographics of study participants can be found in Table 1.

Measures

To determine eligibility, the survey asked whether students were public health majors and whether the student was upper division. Questions assessed age, sex, and gender identity. First generation college student status was assessed with the question “Do either of your parent(s) or guardian(s) have a college degree?”

Ethnicity and Race: We used two questions from the 2010 U.S. Census to assess ethnicity and race.^{51, 52} The first question assesses Hispanic, Latino, or Spanish origin. We combined all non-Mexican Hispanic/Latinx groups into one category and analyzed Hispanic/Latinx ethnicity to compare Non-Hispanic/Latinx and Hispanic/Latinx students, as well as to examine differences within the Hispanic/Latinx category between Mexicans and non-Mexican Hispanic/Latinx students.

The second Census question assesses race and gives participants the instruction to circle all that apply from a list of racial groups. Following Census guidance, we categorized participants who selected only one option as either American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, or White. We also categorized participants who selected more than one of the above options within the Asian category as Asian. Because of the large proportion of Asian participants in our study and the call for disaggregation within the Asian community, we disaggregated the category further, reporting data on the broad racial category “Asian,” and, within Asian, separately for Chinese, Filipino, Vietnamese, and “Other Asian and Multi-Asian” participants.^{53, 54}

The complexity of Hispanic/Latinx identity was manifest in our participants’ responses to the race question. Consistent with national findings from the Census and from the Pew Research Center’s National Survey of Latinos, only 36% of the Latinx respondents to our survey identified a race using one or more of the categories provided.^{55, 56} Of the other Hispanic/Latinx participants, 43% left the race question entirely blank and 20% selected the option “Some other race” and wrote in “Latinx,” “Hispanic,” or “Mexican.” In order to stay true to participant’s self-identification, we therefore created a race category of “Hispanic/Latinx” and coded participants who identified as Hispanic/Latinx in the first question on ethnicity and either left the race question blank or wrote in “Hispanic,” “Latinx,” or “Mexican” as “Hispanic/Latinx.” We did not reclassify participants who reported Hispanic/Latinx ethnicity and identified their race using one of the categories provided; we maintained their self-identified race as their assigned race in the dataset. Thus, we report separately on ethnicity and race variables and while both have an Hispanic/Latinx category, the number of participants categorized with Hispanic/Latinx ethnicity and Hispanic/Latinx race differ.

We categorized participants as “Multiracial” when they selected more than one of the above options, but did not select “Some other race.” Participants who selected “Some other race” either in combination with another race or uniquely and wrote in a race that was not “Hispanic,” “Latinx” or “Mexican” were classified as “Other” with respect to race.

Depression: We assessed depression with the Patient Health Questionnaire-9 (PHQ-9), a nine-item self-assessment.^{57, 58} The scale asks respondents to answer: “Over the last 2 weeks, how often have you been bothered by any of the following problems” with four possible choices ranging from not at all to nearly every day. We scored the PHQ-9 response according to conventions as follows: Minimal (0-4), Mild (5-9), Moderate (10-14), Moderately severe (15-19), and Severe (20-27).⁵⁷ In binary analyses, participants were classified as “depressed” if they scored 10 or above.⁵⁷ The final question assesses “thoughts that you would be better off dead or of hurting yourself in some way” and has been used as a proxy for suicidal ideation.^{59, 60} We classified responses of “not at all” to this question as not having suicidal ideation and responses of “several days” or more frequently as having suicidal ideation. The PHQ-9 has been used to assess depression in diverse populations, including with college students.^{15, 17, 61} The scale has good psychometric properties and strongly predicts depression and depression severity: using a mental health professional diagnostic interview as the comparison, across a range of study populations a PHQ-9 score of 10 or higher had a sensitivity of 88% and specificity of 88% for major depression.⁵⁷ In our study, the Cronbach’s alpha for the PHQ-9 was excellent at 0.88.

Discrimination. We used the Expanded Everyday Discrimination Scale to assess experiences of discrimination.⁶² This is a ten-item self-report scale assessing the frequency of common acts of discrimination. Each item is preceded with the question “in your day-to-day life, how often do any of the following things happen to you?” Six response options range from

“never” to “almost every day.” A follow-up question assesses the participant’s belief about the reason for the discrimination with the response options: Your Ancestry or National Origins, Gender, Race, Age, Religion, Height, Weight, A Physical Disability, Some Other Aspect of Your Physical Appearance, Sexual Orientation, Education or Income Level; multiple reasons can be selected. This scale has been used in racially diverse populations⁶³⁻⁶⁵ and been found to have good psychometric properties in adolescents⁶⁶ and adults.⁶⁴ In our study, the Cronbach’s alpha for the Expanded Everyday Discrimination Scale was excellent at 0.87, and very similar to reliability measures in other studies.⁶⁴

Subjective Social Status. We used the MacArthur Scale of Subjective Social Status⁴² to assess participants’ socioeconomic status and sense of being valued in their community. The scale is made up of two questions, each accompanied by a drawing of a ladder with 10 rungs. For the first question, assessing Socioeconomic Status, the text indicates that the ladder represents where people stand in the United States. The top rung represents “people who are the best off, those who have the most money, most education, and best jobs” and the bottom rung represents “people who are the worst off, those who have the least money, least education, worst jobs, or no job.” Participants are asked to place an “X” on the rung that best represents where they think they stand on the ladder. The second question assesses Community Standing. The text accompanying the second ladder asks participants to “think of this ladder as representing where people stand in their communities. People define community in different ways; please define it in whatever way is most meaningful to you.” Again, the top of the ladder represents people with the “highest standing in their community” and the bottom of the ladder represents people with “the lowest standing in their community.” Participants are asked to place an “X” on the rung that represents where they stand on the ladder “at this time in your life relative to other people in your

community.” This scale has been widely used in diverse populations and is strongly associated with objective measures of social status.^{44, 67, 68} It has been suggested that using these two ladders independently is particularly useful in the context of poorer communities where one may not have a high socioeconomic status, but may have high standing within one’s community.⁴² We report responses to the two questions as separate items.

Statistical Methods

We describe the demographic characteristics and the distribution of co-factors of interest. For categorical variables, we calculated the percentages for each stratum and for continuous variables we calculated the mean, range, and standard deviation. We estimated the prevalence of depression, each level of depression, and the prevalence of suicidal ideation. Participants with missing data on any item in the depression scale were counted as missing. We then estimated the prevalence of these problems by demographic groups. We tested for differences in the prevalence of depression and suicidal ideation using univariable Poisson regression models with robust standard errors.⁶⁹

We used Poisson regression to identify differences in the prevalence of depression by discrimination and socioeconomic status and then adjusted the regression models for age, gender, ethnicity, and race. In this case, adjusting the model for these factors results in a measure that can be interpreted as the portion of an inequality in depression caused by differences in discrimination or socioeconomic status that remains if inequalities in discrimination and socioeconomic status by age, gender, ethnicity, and race were removed. To further understand the association between depression and discrimination and subjective social status, we examined the association between severity of depression and discrimination and subjective social status using

linear regression models. For each regression, we report the regression coefficient (β) and the correlation coefficient (r) with corresponding 95% confidence intervals. We then stratified these linear regression models by the reason the participant had selected for their experience of discrimination, comparing the top five reasons. We tested the correlation coefficients, r , from the stratified models for homogeneity using the method described by Cox, which is based on Fisher's use of the inverse hyperbolic tangent function.⁷⁰ This approach yields a p-value for a chi-squared test statistic, which we report as " p_{corr} " to distinguish it from the p-value for the regression model.

Using the joint disparity approach described by Jackson, Williams, and VanderWeele,⁷¹ we compare the depression severity measured as the mean score on the PHQ-9 among Hispanic/Latinx first generation students to depression severity among non-Hispanic/Latinx non-first generation students, and among Hispanic/Latinx first generation women compared to non-Hispanic/Latinx non-first generation men. We test these differences for statistical significance using a t -test. In addition, we examine the prevalence differences in depression among those with multiply marginalized intersectional identities through use of an interaction term in a Poisson regression model with robust standard errors. This gives us an estimate of the prevalence ratio comparing those with multiple marginalized identities to those without these marginalized identities.⁷²

Results

The study population is described in Table 1. Mean age was 22 (range 19 to 50, standard deviation 3.24), with 83.3% of participants being between the ages of 19 – 24. Most of the study participants were women (77.8%) and over half were first generation (61.0%). The students in

our study were racially and ethnically diverse. Hispanic, Latino, or Spanish origin was reported by 106 (31.4%) participants, with 87 (25.7%) participants identifying as Mexican, Mexican American, or Chicano. Half of the study participants identified as Asian (N=170, 50.5%), and within that category the largest groups were Filipino (N=53, 15.7%), Vietnamese (N=40, 11.8%), and Chinese (N=23, 6.8%). There was very little missing data, with most variables having 0 or 1 participants with missing data; community standing had the most missing observations at 7. Participants missing data required for any given analysis were dropped from that analyses. [Insert Table 1 near here]

The mean score on the PHQ-9 was 6.89 (range 0 to 25, SD 5.28). Using the standard cut-off points, 126 participants (37.6%) reported minimal depression, 124 (37.0%) reported mild depression, 58 (17.3%) reported moderate depression, 14 (4.2%) reported moderately severe depression, and 13 (3.9%) reported severe depression; thus 25.4% of participants were classified with depression. Suicidal ideation in the past two weeks was reported by 50 participants (14.9%). The prevalence of depression and suicidal ideation by demographic characteristics are shown in Table 1.

The mean score on the Expanded Everyday Discrimination Scale was 12.62 (range 0 to 40, SD 7.18) (Table 1). The majority of participants selected more than one reason as the “main reason” for their experiences of discrimination. The most common reasons selected were race (50.9%), gender (42.0%), age (34.6%), and education or income (23.4%); 25.1% of participants selected both race and gender as the main reasons they experienced discrimination. The mean score on the Socioeconomic Status ladder was 5.47 (range 1 to 10, SD 1.83). The mean score on the Community Standing ladder was 6.07 (range 1 to 10, SD 1.66). The mean discrimination and subjective social status scores by demographic characteristics are shown in Table 1.

In regression analysis, we found no statistically significant difference in the prevalence of depression or suicidal ideation by age. There were no differences in depression or suicidal ideation between men and women. The prevalence of depression was higher among Mexicans and Other Hispanic/Latinx compared to Non-Hispanic/Latinx (Mexican compared to Non-Hispanic/Latinx Prevalence Ratio [PR]: 1.53, 95% CI 1.03 – 2.26, $p=0.035$; Other Hispanic/Latinx compared to Non-Hispanic/Latinx PR: 1.98, 95% CI 1.10 – 3.54, $p=0.022$). There was no statistically significant difference between Mexicans and Other Hispanic/Latinx in the prevalence of depression. There was also no statistically significant difference in suicidal ideation by Hispanic/Latinx ethnicity. Thus, for subsequent analyses we combine Mexican and Other Hispanic/Latinx ethnicity.

Depression was common among all racial groups. With the exception of White participants, differences in the prevalence of depression were not statistically significant when using a baseline group with prevalence similar to the overall population (White compared to Asian PR 1.67, 95% CI 1.05 – 2.64, $p=0.030$). There were no statistically significant differences in the prevalence of suicidal ideation by racial group. The prevalence of depression was 63% higher among first generation students compared to those students who were not first generation (PR 1.63, 95% CI 1.07 – 2.48; $p=0.022$); there was no difference in suicidal ideation.

Table 2 presents the differences in the prevalence of depression by discrimination, socioeconomic standing, and community standing. We adjusted these analyses for age, gender, ethnicity, and race. For each additional standard deviation higher level of discrimination, the adjusted prevalence of depression was 31% higher (adjusted Prevalence Ratio [aPR] 1.31, 95% CI: 1.12 – 1.53, $p=0.001$). For each rung higher of socioeconomic status reported, the prevalence of depression was 16% lower (aPR 0.84, 95% CI 0.75 – 0.95, $p=0.004$). For each rung higher

community standing reported, the prevalence of depression was 12% lower (aPR 0.88, 95% CI: 0.80 – 0.98. $p=0.020$). [Insert Table 2 near here]

We also assessed the correlation between severity of depression and experiences of discrimination (Table 2). Participants with more experiences of discrimination reported more severe depression ($\beta = 0.25$, $r = 0.34$, $p=0.001$). In multivariable linear regressions controlling for age, gender, ethnicity, and race, the strength of this association was maintained. We explored whether there were differences in the association between depression and discrimination for those who reported different reasons for discrimination by stratifying these analyses by main reason (race, gender, age, education or income, and race and gender) and found no statistically significant differences in these associations ($p_{\text{corr}} = 0.863$).

Participants with higher self-ratings on socioeconomic status had less severe depression for each increase in rungs on the socioeconomic status ladder ($\beta = -0.69$, $r = 0.24$, $p=0.001$). The same was true for community standing, whereby those with higher self-ratings on the community standing ladder had incrementally less severe depression ($\beta = -0.57$, $r = 0.18$, $p=0.001$). These findings were maintained in adjusted analyses controlling for age, gender, ethnicity, and race (Table 2).

In order to provide a deeper understanding of the intersections of ethnic and racial identity and first generation status in our study population, we first describe the distribution of Hispanic/Latinx ethnicity and first generation status (Table 3). Notably, Hispanic/Latinx students were present in nearly all racial categories, including 100.0% of the American Indian and Alaska Native students, 30.0% of the black students, and 39.6% of the white students. There were ethnic and racial differences in the proportion of the student population that was first generation. While 61.0% of all participants were first generation, 88.5% of Mexican students were first generation.

In regression analysis, this difference was statistically significant, with Mexican students having 72.5% higher prevalence of being first generation than non-Hispanic/Latinx students (95% CI 1.49 – 2.00, $p=0.000$). The proportion of first generation students differed by racial group, though most differences did not reach the threshold of statistical significance. There were statistically significant differences within Asian participants, with 69.6% of Chinese students and 65.0% of Vietnamese students being first generation compared to 37.7% of Filipino students. In regression analysis, this difference was statistically significant, with Filipino students having 42% lower prevalence of being first generation compared to Vietnamese students (95% CI 0.38 – 0.88, $p=0.010$). [Insert Table 3 near here]

To examine the effects of having multiple marginalized identities, we assessed the joint disparity for Hispanic/Latinx first generation students by comparing the mean depression severity score in different sub-groups of our sample. The mean depression severity for non-Hispanic/Latinx non-first generation students was 5.74 and 7.36 for Hispanic/Latinx first generation students, leading to a joint disparity of 1.62 points on the PHQ-9 (t -test for difference: $p=0.0096$). Adding gender to the calculation, the mean depression severity for non-Hispanic/Latinx non-first generation men was 5.41 compared to a mean of 7.78 for Hispanic/Latinx first generation women, leading to a joint disparity of 2.37 points on the PHQ-9 (t -test for difference: $p=0.0008$).

By using an interaction term in the Poisson regression model, we estimate that the prevalence of depression among Hispanic/Latinx first generation students is 2.22 times the prevalence of depression among non-Hispanic/Latinx non-first generation students (95% CI 1.31 – 3.77, $p=0.003$). The prevalence of depression among Hispanic/Latinx first generation women

students is 3.26 times the prevalence of depression among non-Hispanic/Latinx non-first generation male students (95% CI 1.07 – 9.93, $p=0.037$).

Discussion

This study aimed to assess the prevalence of depression in college students and the impact of ethnicity, first generation status, and gender on depression. As hypothesized, we found that students occupying multiple social positions that frequently come into conflict with dominant norms of institutions of higher education (i.e. being an Hispanic/Latinx first generation woman) had a higher prevalence of depression compared to students occupying fewer marginalized social positions. In addition, we aimed to directly assess the association between discrimination, perceived socioeconomic status and depression. We found that more experiences of discrimination were associated with a higher prevalence of depression and more severe depression symptoms. Higher perceived social and community standing were associated with less depression and lower depression symptom severity.

Overall, the prevalence of depression in this highly diverse student population was high at 25.4%. Using the same measure of depression that we employed in this study, The Healthy Minds Study reported wide variation in the prevalence of depression across campuses ranging from 12% to 27%.³³ Our observed prevalence was thus on the high end of this spectrum.³³ We hypothesize that this is not because students at our university are generally more depressed, but because our study population had higher concentrations of students with marginalized social positions known to be correlated with higher risk of depression in college students.

While there are mixed reports in the literature, consistent with some of the larger studies of depression among college students, we found variation in the prevalence of depression by

ethnicity with Hispanic/Latinx students having a higher prevalence of depression and reporting more depressive symptoms compared to non-Hispanic/Latinx students.¹³ Similarly, we found first generation students have a higher prevalence of depression compared to those who are not first generation.^{34, 73}

While women in our study had a higher prevalence of depression than men, this difference was not statistically significant, which is consistent with some smaller studies¹⁵ and with the very large Healthy Minds study.¹³ Larger studies of college students have tended to find that women have a higher prevalence of depression than men,^{13, 33} which is the same pattern found in the general adult population.¹

Consistent with studies of Latinx and Asian students, we found perceived discrimination is associated with higher prevalence of depression and more severe depression symptoms in this diverse college-attending population.^{19, 74} Cokley et al⁷⁵ reported ethnic minority students had significantly higher levels of perceived discrimination and poorer mental health than European American students and discrimination accounted for a modest part of this association. Consistent with Cokley et al⁷⁵, we found no differences in depression severity by the reason that was identified for the discrimination.

This study adds to the literature in clinical and general adult populations that identifies a lower prevalence of depression among those with higher levels of subjective social status.^{46, 47} This is the first study that we know of to assess this association in college students. We used two measures of subjective social status – one with a comparison to the U.S. population and one with a comparison to the participant’s community. As expected, students generally rated themselves higher on the community standing ladder than the socioeconomic status ladder with the U.S. population comparison group. In our study context, half of the participants were first generation

college students and ranking on the community ladder may reflect a sense of family and community pride in college attendance.

Previous studies of depression in college students have examined variables one by one, identifying a list of “risk factors” that might alter an individual’s risk of depression.^{15, 18, 76, 77} Other studies have statistically adjusted regression analyses for sociodemographic factors.⁷⁸ However, as VanderWeele and Robinson⁷⁹ have described, regressions that adjust for multiple sociodemographic factors are challenging to interpret as their meaning is dependent on the ordering of variables and causal assumptions about the interrelationships of these variables. These approaches offer limited insight into the experiences of actual students, whose identities and social positions are structured multidimensionally and not along a single axis. Indeed, the distribution of, for example, generational status by ethnicity is not random, but is structured by historical and contemporary policies, laws, and practices that increase the likelihood that Hispanic/Latinx students will also be first generation students. This unequal distribution was manifest in our study population, with Hispanic/Latinx students significantly more likely than non-Hispanic/Latinx students to be first generation.

We examined the intersectional hypothesis that Hispanic/Latinx first generation students have higher prevalence of depression and more severe depression than students who are non-Hispanic/Latinx non-first generation students. In addition, although we observed no gender difference in the prevalence of depression in bivariate analyses, we also examined the effect of adding gender to the intersectional hypotheses by comparing Hispanic/Latinx first generation women to non-Hispanic/Latinx non-first generation men. In all four analyses, we found groups defined by multiple marginalized positions have a higher prevalence of depression and greater symptom severity than groups defined by more dominant positions.

Bauer and Scheim⁸⁰ recently described methods to examine discrimination as a mediator in the causal association between social identity (i.e. membership or perception of membership in socially marginalized groups) and health outcomes. Further research can expand on the present study by applying these methods to examine whether experiences of discrimination mediate the association between marginalized social positions and depression in college students. A limitation of this study is that it is descriptive in nature, analyzing the association between axes of multiple identity positions (ethnicity, generation status, and gender) and depression. We hypothesize that discrimination and social status are causally associated with depression but as this study was cross-sectional, we cannot establish a causal association.

As Evans et al^{81(p65)} have cautioned, the goal of this present study is not to identify a more specific set of “risky identities” that are burdened by a higher prevalence of depression, but rather to illuminate the “structural power hierarchies, social processes, and social determinants that shape the social experiences of individuals with those intersectional identities.” Indeed, the increased prevalence of depression in the groups with multiple marginalized identities can be interpreted as representing the “aggregate of the social processes that create and sustain social hierarchies.”^{82(p75)} This approach might be particularly useful for college counseling centers analyzing data on their treatment-seeking populations. For example, the Center for Collegiate Mental Health reports data on tens of thousands of college students seeking treatment at over a hundred campus counseling centers.⁸³ These data are disaggregated by a set of demographic characteristics including race/ethnicity, gender identity, and first generation status. An intersectional approach could help characterize the treatment-seeking population and illuminate the effects of multiple marginalized identities, which in turn might aid counselors in discussing structural factors that can impact mental health.

Our study had several strengths, including a participatory research design whereby students in the population under study led the study design, data collection, analysis, and dissemination of this research. Participatory approaches can enhance research validity compared to non-participatory research.⁸⁴ Our high response rate means our sample is unlikely to suffer from non-response or selection bias and can be considered generalizable to upper division public health students at this university in 2018. This population excludes students who may have dropped out of college prior to attaining upper division status, which could potentially lead to an underestimation of the prevalence of depression in the target population. While our generalizability is limited beyond this particular target group, we have no reason to believe students in this major are significantly different from other college students in comparable contexts.

We used validated scales to assess depression, discrimination, and subjective social status. However, our reliance on a single item of the PHQ-9 to assess suicidal ideation, though a common practice, could lead to biased estimates of suicidal ideation in this population. While our measure of discrimination allows people to select all the reasons that they believe they experience discrimination, and does not require that they attribute each particular experience to one cause, any validated scale to assess discrimination is developed based on the experiences of specific marginalized groups and may fail to fully capture the range of experiences of discrimination faced by any specific person or intersectional category of people.^{82, 85} Another limitation of this scale is that it does not distinguish between multiple and intersectional discrimination – i.e. whether people experience discrimination separately due to multiple categories (e.g. racial discrimination in school and homophobia at church) or intersectional discrimination (e.g. differential treatment because of being a racial and sexual minority).⁸²

Reliance on these self-report instruments may produce bias and limit our conclusions. Due to our small sample size, we were underpowered to conduct a mediation analysis, and thus our results are descriptive in nature. We hope that the methods described will encourage others with larger datasets to assess intersectionality in their study population.

Conclusion

Several policies, laws, and practices contribute to observed disparities in depression in students; changes in these policies may be able to mitigate these disparities. For example, policies that set the cost of tuition and the frameworks for obtaining tuition assistance (e.g. requiring legal residency documentation to pay in-state tuition or obtain a work-study job) disproportionately affect Hispanic/Latinx college students.⁸⁶ First generation college students are more likely to be employed, work more hours per week, and work off-campus than non-first generation peers.^{87, 88} Policies that provide financial support to students have eliminated the gap in first generation and non-first generation employment, reduced student employment overall, and reduced the likelihood that a student will work overnight, which itself increases the risk of depression.^{87, 89} While school-based counseling services and policies that support enhanced and targeted advising, mentoring, and social support are appropriate to help individuals currently in college, they will not change the policies, laws, and practices that create the inequitable conditions for multiply marginalized populations. These practices are necessary, and some evidence shows that integrated models of care and universal approaches can help meet students' mental health needs.⁹⁰ Similarly, increasing the diversity of counseling staff may help meet a need for more culturally aligned treatment and can improve treatment utilization for students from marginalized groups.⁹¹⁻⁹³ However, these practices do not address the upstream factors that produce disparities

in depression in college students. Discrimination and social status are modifiable factors. Counselors at colleges can work with students to understand the structural factors that may increase the burden of depression among socially marginalized students.⁷⁴ Universities must also continue their critical mission of teaching to generate social change to reduce discrimination and dismantle the structures that perpetuate unequal access to wellbeing and opportunity.

References

1. National Institutes of Mental Health. Major Depression. Accessed November 20,, <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>
2. World Health Organization. Depression Fact Sheet. Accessed November 20,, <https://www.who.int/news-room/fact-sheets/detail/depression>
3. Buchanan JL. Prevention of depression in the college student population: a review of the literature. *Arch Psychiatr Nurs*. Feb 2012;26(1):21-42. doi:10.1016/j.apnu.2011.03.003
4. American College Health Association. *American College Health Association-National College Health Assessment II: Undergraduate Student Reference Group Data Report Spring 2019*. 2019.
5. Ibrahim AK, Kelly SJ, Adams CE, Glazebrook C. A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*. 2012;47(3)doi:10.1016/j.jpsychires.2012.11.015
6. Adams TB, Wharton CM, Quilter L, Hirsch T. The association between mental health and acute infectious illness among a national sample of 18- to 24-year-old college students. *J Am Coll Health*. May-Jun 2008;56(6):657-63. doi:10.3200/jach.56.6.657-664
7. Heiligenstein E, Guenther G, Hsu K, Herman K. Depression and academic impairment in college students. *J Am Coll Health*. Sep 1996;45(2):59-64. doi:10.1080/07448481.1996.9936863
8. Hysenbegasi A, Hass SL, Rowland CR. The impact of depression on the academic productivity of university students. *J Ment Health Policy Econ*. Sep 2005;8(3):145-51.
9. Raskind IG, Haardorfer R, Berg CJ. Food insecurity, psychosocial health and academic performance among college and university students in Georgia, USA. *Public Health Nutr*. Mar 2019;22(3):476-485. doi:10.1017/s1368980018003439
10. Cranford JA, Eisenberg D, Serras AM. Substance use behaviors, mental health problems, and use of mental health services in a probability sample of college students. *Addict Behav*. Feb 2009;34(2):134-45. doi:10.1016/j.addbeh.2008.09.004
11. Serras A, Saules KK, Cranford JA, Eisenberg D. Self-injury, substance use, and associated risk factors in a multi-campus probability sample of college students. *Psychol Addict Behav*. Mar 2010;24(1):119-28. doi:10.1037/a0017210
12. Cukrowicz KC, Schlegel EF, Smith PN, et al. Suicide Ideation Among College Students Evidencing Subclinical Depression. *Journal of American College Health*. 2011;59(7):575-581. doi:10.1080/07448481.2010.483710
13. Lipson SK, Kern A, Eisenberg D, Breland-Noble AM. Mental Health Disparities Among College Students of Color. *Journal of Adolescent Health*. 2018;63(3):348-356. doi:10.1016/j.jadohealth.2018.04.014
14. Substance Abuse and Mental Health Services Administration. *The NSDUH Report: Major Depressive Episode among Full-Time College Students and Other Young Adults, Aged 18 to 22* . Rockville, MD. 2012. <https://www.samhsa.gov/data/sites/default/files/NSDUH060/NSDUH060/SR060CollegeStudentsMDE2012.htm>
15. Eisenberg D, Gollust SE, Golberstein E, Hefner JL. Prevalence and Correlates of Depression, Anxiety, and Suicidality Among University Students. *American Journal of Orthopsychiatry*. 2007;77(4):534-542. doi:10.1037/0002-9432.77.4.534
16. Farabaugh A, Bitran S, Nyer M, et al. Depression and suicidal ideation in college students. *Psychopathology*. 2012;45(4):228-34. doi:10.1159/000331598

17. Garlow SJ, Rosenberg J, Moore JD, et al. Depression, desperation, and suicidal ideation in college students: results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depression and Anxiety*. 2008;25(6):482-488. doi:10.1002/da.20321
18. Rosenthal BS, Schreiner AC. Prevalence of Psychological Symptoms Among Undergraduate Students in an Ethnically Diverse Urban Public College. *Journal of American College Health*. 2000;49(1):12-18. doi:10.1080/07448480009596277
19. Hwang WC, Goto S. The impact of perceived racial discrimination on the mental health of Asian American and Latino college students. *Cultur Divers Ethnic Minor Psychol*. Oct 2008;14(4):326-35. doi:10.1037/1099-9809.14.4.326
20. Museus SD, Sariñana SAL, Yee AL, Robinson TE. A Qualitative Analysis of Multiracial Students' Experiences With Prejudice and Discrimination in College. *Journal of college student development*. 2016;57(6):680-697. doi:10.1353/csd.2016.0068
21. Daftary A-M, Devereux P, Elliott M. Discrimination, depression, and anxiety among college women in the Trump era. *Journal of gender studies*. 2020;29(7):765-778. doi:10.1080/09589236.2020.1767546
22. Lowe SR, Tineo P, Young MN. Perceived Discrimination and Major Depression and Generalized Anxiety Symptoms: In Muslim American College Students. *J Relig Health*. Aug 2019;58(4):1136-1145. doi:10.1007/s10943-018-0684-1
23. Chen AC-C, Szalacha LA, Menon U. Perceived Discrimination and Its Associations With Mental Health and Substance Use Among Asian American and Pacific Islander Undergraduate and Graduate Students. *Journal of American College Health*. 2014;62(6):390-398. doi:10.1080/07448481.2014.917648
24. Sanchez D, Awad GH. Ethnic group differences in racial identity attitudes, perceived discrimination and mental health outcomes in African American, Black Caribbean and Latino Caribbean college students. *International Journal of Culture and Mental Health*. 2016;9(1):31-43. doi:10.1080/17542863.2015.1081955
25. Volpe VV, Beacham A, Olafunmiloye O. Cognitive flexibility and the health of Black college-attending young adults experiencing interpersonal racial discrimination. *J Health Psychol*. Aug 16 2019;1359105319869812. doi:10.1177/1359105319869812
26. Arbona C, Jimenez C. Minority stress, ethnic identity, and depression among Latino/a college students. *J Couns Psychol*. Jan 2014;61(1):162-168. doi:10.1037/a0034914
27. Sanchez D, Smith LV, Adams W. The Relationships Among Perceived Discrimination, Marianismo Gender Role Attitudes, Racial-Ethnic Socialization, Coping Styles, and Mental Health Outcomes in Latina College Students. *Journal of Latina/o Psychology*. 2018;6(1):1-15. doi:10.1037/lat0000077
28. Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *J Health Soc Behav*. Sep 1999;40(3):208-30.
29. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychol Bull*. Jul 2009;135(4):531-54. doi:10.1037/a0016059
30. Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health*. Feb 2003;93(2):200-8. doi:10.2105/ajph.93.2.200

31. Duran A. Queer and of Color: A Systematic Literature Review on Queer Students of Color in Higher Education Scholarship. *Journal of Diversity in Higher Education*. 2018;doi:10.1037/dhe0000084
32. Rodriguez N, Myers HF, Morris JK, Cardoza D. Latino College Student Adjustment: Does an Increased Presence Offset Minority-Status and Acculturative Stresses? 1. *Journal of Applied Social Psychology*. 2000;30(7):1523-1550. doi:10.1111/j.1559-1816.2000.tb02534.x
33. Eisenberg D, Hunt J, Speer N. Mental Health in American Colleges and Universities: Variation Across Student Subgroups and Across Campuses. *The Journal of Nervous and Mental Disease*. 2013;201(1):60-67. doi:10.1097/NMD.0b013e31827ab077
34. Stebleton MJ, Soria KM, Huesman RL. First-Generation Students' Sense of Belonging, Mental Health, and Use of Counseling Services at Public Research Universities. *Journal of College Counseling*. 2014;17(1):6-20. doi:10.1002/j.2161-1882.2014.00044.x
35. Crenshaw K. Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *u Chi Legal f*. 1989:139.
36. Morales EM. Intersectional Impact: Black Students and Race, Gender and Class Microaggressions in Higher Education. *Race, gender & class (Towson, Md)*. 2014;21(3/4):48-66.
37. Nadal KL, Davidoff KC, Davis LS, Wong Y, Marshall D, McKenzie V. A Qualitative Approach to Intersectional Microaggressions: Understanding Influences of Race, Ethnicity, Gender, Sexuality, and Religion. *Qualitative psychology (Washington, DC)*. 2015;2(2):147-163. doi:10.1037/qup0000026
38. Duran A. "Outsiders in a niche group": Using intersectionality to examine resilience for queer students of color. *Journal of diversity in higher education*. 2019;doi:10.1037/dhe0000144
39. Duran A, Jones SR. Using Intersectionality in Qualitative Research on College Student Identity Development: Considerations, Tensions, and Possibilities. *Journal of college student development*. 2019;60(4):455-471. doi:10.1353/csd.2019.0040
40. Garriott PO, Ko S-JS, Grant SB, Jessen M, Allan BA. When Race and Class Collide: Classism and Social-Emotional Experiences of First-Generation College Students. *Journal of college student retention : Research, theory & practice*. 2021:152102512199548. doi:10.1177/1521025121995483
41. Vu M, Li J, Haardörfer R, Windle M, Berg CJ. Mental health and substance use among women and men at the intersections of identities and experiences of discrimination: Insights from the intersectionality framework. *BMC Public Health*. 2019;19(1):108-108. doi:10.1186/s12889-019-6430-0
42. Adler N, Stewart J. *The MacArthur Scale of Subjective Social Status*. 2007. *MacArthur Research Network on SES & Health*.
<https://macses.ucsf.edu/research/psychosocial/subjective.php>
43. Operario D, Adler NE, Williams DR. Subjective social status: reliability and predictive utility for global health. *Psychology & Health*. 2004;19(2):237-246. doi:10.1080/08870440310001638098
44. Ostrove JM, Adler NE, Kuppermann M, Washington AE. Objective and Subjective Assessments of Socioeconomic Status and Their Relationship to Self-Rated Health in an Ethnically Diverse Sample of Pregnant Women. *Health Psychology*. 2000;19(6):613-618. doi:10.1037/0278-6133.19.6.613
45. Shaked D, Williams M, Evans MK, Zonderman AB. Indicators of subjective social status: Differential associations across race and sex. *SSM - population health*. 2016;2:700-707. doi:10.1016/j.ssmph.2016.09.009

46. Diaz OV, Guendelman S, Kuppermann M. Subjective Social Status and Depression Symptoms: A Prospective Study of Women with Noncancerous Pelvic Problems. *Women's Health Issues*. 2014;24(6):649-655. doi:10.1016/j.whi.2014.07.003
47. Singh-Manoux A, Adler NE, Marmot MG. Subjective social status: its determinants and its association with measures of ill-health in the Whitehall II study. *Social Science & Medicine*. 2003;56(6):1321-1333. doi:10.1016/S0277-9536(02)00131-4
48. Nguyen T-H, Nguyen BMD. Is the “First-Generation Student” Term Useful for Understanding Inequality? The Role of Intersectionality in Illuminating the Implications of an Accepted—Yet Unchallenged—Term. *Review of Research in Education*. 2018/03/01 2018;42(1):146-176. doi:10.3102/0091732X18759280
49. Kendi IX. *How to be an antiracist*. One World; 2019.
50. *Stata Statistical Software: Release 12*. StataCorp LP; 2011.
51. Humes KR, Jones NA, Ramirez RR. *Overview of Race and Hispanic Origin: 2010*. 2011. <https://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>
52. U.S. Department of Commerce. Race and Ethnicity. U.S. Department of Commerce; 2017.
53. Dizon JPM. Lessons on Ethnic Data Disaggregation from the “Count Me In” Campaign. *The Vermont Connection*. 2011;32(3)
54. Poon O. Asian Ethnicity Data Helps Students, Saves Lives. *DataBits* blog. October 21, 2017. <http://aapidata.com/blog/poon-aapi-student-data/>
55. Gonzalez-Barrera A, Lopez MH. Is being Hispanic a matter of race, ethnicity or both? Washington, DC: Pew Research Center; 2015.
56. Parker K, Horowitz JM, Morin R, Lopez MH. The Many Dimensions of Hispanic Racial Identity. In: Center PR, ed. *Multiracial in America: Proud, Diverse and Growing in Numbers* Pew Research Center; 2015.
57. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. Sep 2001;16(9):606-13. doi:10.1046/j.1525-1497.2001.016009606.x
58. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. *JAMA*. Nov 1999;282(18):1737-44. doi:10.1001/jama.282.18.1737
59. Rossom RC, Coleman KJ, Ahmedani BK, et al. Suicidal ideation reported on the PHQ9 and risk of suicidal behavior across age groups. *J Affect Disord*. 06 2017;215:77-84. doi:10.1016/j.jad.2017.03.037
60. Simon GE, Rutter CM, Peterson D, et al. Does response on the PHQ-9 Depression Questionnaire predict subsequent suicide attempt or suicide death? *Psychiatr Serv*. Dec 2013;64(12):1195-202. doi:10.1176/appi.ps.201200587
61. Granillo MT. Structure and Function of the Patient Health Questionnaire-9 Among Latina and Non-Latina White Female College Students. *Journal of the Society for Social Work and Research*. 2012;3(2):80-93. doi:10.5243/jsswr.2012.6
62. Williams DR. *Measuring Discrimination Resource*. 2016. *OpenScholar*. https://scholar.harvard.edu/files/davidrwilliams/files/measuring_discrimination_resource_june_2_016.pdf
63. Gonzales KL, Noonan C, Goins RT, et al. Assessing the Everyday Discrimination Scale among American Indians and Alaska Natives. *Psychol Assess*. Jan 2016;28(1):51-8. doi:10.1037/a0039337

64. Kim G, Sellbom M, Ford KL. Race/ethnicity and measurement equivalence of the Everyday Discrimination Scale. *Psychol Assess*. Sep 2014;26(3):892-900. doi:10.1037/a0036431
65. Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health research on racism and health. *Soc Sci Med*. Oct 2005;61(7):1576-96. doi:10.1016/j.socscimed.2005.03.006
66. Clark R, Coleman AP, Novak JD. Brief report: Initial psychometric properties of the everyday discrimination scale in black adolescents. *J Adolesc*. Jun 2004;27(3):363-8. doi:10.1016/j.adolescence.2003.09.004
67. Bullock HE, Limbert WM. Scaling the Socioeconomic Ladder: Low-Income Women's Perceptions of Class Status and Opportunity. *Journal of Social Issues*. 2003;59(4):693-709. doi:10.1046/j.0022-4537.2003.00085.x
68. Franzini L, Fernandez-Esquer ME. The association of subjective social status and health in low-income Mexican-origin individuals in Texas. *Social Science & Medicine*. 2006;63(3):788-804. doi:10.1016/j.socscimed.2006.01.009
69. Zou G. A Modified Poisson Regression Approach to Prospective Studies with Binary Data. *American Journal of Epidemiology*. 2004;159(7):702-706. doi:10.1093/aje/kwh090
70. Cox NJ. Speaking Stata: Correlation with Confidence, or Fisher's z revisited. *The Stata Journal: Promoting communications on statistics and Stata*. 2008;8(3):413-439. doi:10.1177/1536867X0800800307
71. Jackson J, Williams D, VanderWeele T. Disparities at the intersection of marginalized groups. *The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services*. 2016;51(10):1349-1359. doi:10.1007/s00127-016-1276-6
72. Bauer GR. Incorporating intersectionality theory into population health research methodology: Challenges and the potential to advance health equity. *Social Science & Medicine*. 2014;110:10-17. doi:10.1016/j.socscimed.2014.03.022
73. Jenkins SR, Belanger A, Connally ML, Boals A, Durón KM. First-Generation Undergraduate Students' Social Support, Depression, and Life Satisfaction. *Journal of College Counseling*. 2013;16(2):129-142. doi:10.1002/j.2161-1882.2013.00032.x
74. Badiee M, Andrade E. Microsystem and Macrosystem Predictors of Latinx College Students' Depression and Anxiety. *Journal of Hispanic Higher Education*. 2019;18(4):422-434. doi:10.1177/1538192718765077
75. Cokley K, Hall-Clark B, Hicks D. Ethnic Minority-Majority Status and Mental Health: The Mediating Role of Perceived Discrimination. *Journal of Mental Health Counseling*. 2011;33(3):243-263. doi:10.17744/mehc.33.3.u1n011t020783086
76. Beiter R, Nash R, McCrady M, et al. The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*. 2015;173:90-96. doi:10.1016/j.jad.2014.10.054
77. Lester D. Depression and suicidal ideation in college students: a preliminary study of campus variables. *Psychol Rep*. Feb 2013;112(1):106-8. doi:10.2466/12.02.10.pr0.112.1.106-108
78. Blanco C, Okuda M, Wright C, et al. Mental Health of College Students and Their Non-College-Attending Peers: Results From the National Epidemiologic Study on Alcohol and Related Conditions. *Archives of General Psychiatry*. 2008;65(12):1429-1437. doi:10.1001/archpsyc.65.12.1429
79. Vanderweele JT, Robinson RW. On the Causal Interpretation of Race in Regressions Adjusting for Confounding and Mediating Variables. *Epidemiology*. 2014;25(4):473-484. doi:10.1097/EDE.0000000000000105

80. Bauer GR, Scheim AI. Methods for analytic intercategory intersectionality in quantitative research: Discrimination as a mediator of health inequalities. *Social Science & Medicine*. 2019;226:236-245. doi:10.1016/j.socscimed.2018.12.015
81. Evans CR, Williams DR, Onnela J-P, Subramanian SV. A multilevel approach to modeling health inequalities at the intersection of multiple social identities. *Social Science & Medicine*. 2018;203:64-73. doi:10.1016/j.socscimed.2017.11.011
82. Harnois CE, Bastos JL. The promise and pitfalls of intersectional scale development. *Social Science & Medicine*. 2019;223:73-76. doi:10.1016/j.socscimed.2019.01.039
83. Center for Collegiate Mental Health. *2020 Annual Report*. January 2021.
84. Springett J, Wallerstein N. Issues in Participatory Evaluation. In: Minkler M, Wallerstein N, eds. *Community-based participatory research for health: from process to outcomes*. 2nd ed. ed. San Francisco, CA : Jossey-Bass; 2008:199 - 220.
85. Scheim AI, Bauer GR. The Intersectional Discrimination Index: Development and validation of measures of self-reported enacted and anticipated discrimination for intercategory analysis. *Social Science & Medicine*. 2019;226:225-235. doi:10.1016/j.socscimed.2018.12.016
86. Solorzano DG, Villalpando O, Oseguera L. Educational Inequities and Latina/o Undergraduate Students in the United States: A Critical Race Analysis of Their Educational Progress. *Journal of Hispanic Higher Education*. 2005;4(3):272-294. doi:10.1177/1538192705276550
87. Broton KM, Goldrick-Rab S, Benson J. Working for College: The Causal Impacts of Financial Grants on Undergraduate Employment. *Educational Evaluation and Policy Analysis*. 2016;38(3):477-494. doi:10.3102/0162373716638440
88. McFarland J, Hussar B, Zhang J, et al. *The Condition of Education 2019*. Vol. NCES 2019144. 2019. https://nces.ed.gov/programs/coe/pdf/coe_ssa.pdf
89. Lee A, Myung SK, Cho JJ, Jung YJ, Yoon JL, Kim MY. Night Shift Work and Risk of Depression: Meta-analysis of Observational Studies. *Journal of Korean medical science*. 2017;32(7):1091. doi:10.3346/jkms.2017.32.7.1091
90. Downs N, Galles E, Skehan B, Lipson SK. Be True to Our Schools-Models of Care in College Mental Health. *Curr Psychiatry Rep*. 08 2018;20(9):72. doi:10.1007/s11920-018-0935-6
91. Anderson G. The Emotional Toll of Racism. Accessed December 23, 2020.
92. Takeuchi DT, Sue S, Yeh M. Return rates and outcomes from ethnicity-specific mental health programs in Los Angeles. *Am J Public Health*. May 1995;85(5):638-43. doi:10.2105/ajph.85.5.638
93. Ziguras S, Klimidis S, Lewis J, Stuart G. Ethnic matching of clients and clinicians and use of mental health services by ethnic minority clients. *Psychiatr Serv*. Apr 2003;54(4):535-41. doi:10.1176/appi.ps.54.4.535

Table 1: Demographics and the distribution of depression, suicidal ideation, discrimination and socioeconomic status

Characteristic	Total N (%)	Depression N (%)	Suicidal Ideation N (%)	Discrimination (mean, SE)	Socioeconomi c Status (mean, SE)	Community Standing (mean, SE)
Total	338 (100)	85 (25.4)	50 (15.0)	12.6 (0.39)	5.5 (0.10)	6.1 (0.09)
Gender						
Man	74 (21.9)	14 (19.4)	9 (12.5)	13.0 (0.86)	5.6 (0.22)	6.4 (0.22)
Woman	263 (77.8)	71 (27.1)	41 (15.7)	12.5 (0.44)	5.4 (0.11)	6.0 (0.09)
Other Gender	1 (0.3)	0 (0.0)	0 (0.0)	25.0 (NA)	5.0 (NA)	5.0 (NA)
Age						
19 – 21 years	143 (42.7)	40 (28.2)	22 (15.6)	13.5 (0.63)	5.3 (0.15)	6.1 (0.14)
22 – 24 years	136 (40.6)	32 (23.9)	20 (14.9)	12.0 (0.60)	5.6 (0.16)	6.0 (0.14)
25 years or older	56 (16.7)	13 (23.2)	7 (12.5)	11.9 (0.89)	5.4 (0.25)	6.0 (0.23)
Ethnicity						
Non-Hispanic	232 (68.6)	49 (21.3)	37 (16.2)	12.3 (0.48)	5.78 (0.11)	6.2 (0.11)
Hispanic	106 (31.4)	36 (34.3)	13 (12.4)	13.2 (0.68)	4.8 (0.18)	5.7 (0.17)

Race

American Indian or Alaska Native	4 (1.2)	2 (50.0)	1 (25.0)	20 (4.78)	4.25 (1.31)	5.7 (1.11)
Asian	170 (50.5)	38 (22.5)	29 (17.3)	12.3 (0.57)	5.5 (0.13)	6.1 (0.12)
Chinese	23 (6.8)	5 (21.7)	4 (17.4)	11.9 (3.2)	5.8 (0.32)	6.0 (0.35)
Filipino	53 (15.7)	16 (30.2)	8 (15.4)	13.0 (1.18)	5.5 (0.25)	6.1 (0.23)
Vietnamese	40 (11.8)	8 (20.5)	10 (25.6)	10.5 (1.00)	5.2 (0.25)	5.9 (0.31)
Other Asian & Multi-Asian	54 (16.0)	9 (16.7)	7 (13.0)	13.0 (0.96)	5.6 (0.21)	6.3 (0.17)
Black	10 (3.0)	1 (10.0)	1 (10.0)	15.8 (3.21)	5.3 (0.60)	5.6 (0.56)
Native Hawaiian or Pacific Islander	1 (0.3)	1 (100.0)	0 (0)	11 (NA)	5.0 (NA)	5.0 (NA)
White	48 (14.2)	18 (37.5)	9 (18.8)	12.4 (0.82)	6.0 (0.28)	6.1 (0.27)
Multiracial	29 (8.6)	8 (27.6)	4 (13.8)	13.7 (1.26)	5.9 (0.36)	6.4 (0.32)
Hispanic	68 (20.2)	16 (23.9)	5 (7.5)	12.8 (0.82)	4.75 (0.21)	5.7 (0.20)
Other	7 (2.1)	1 (16.7)	1 (16.7)	8 (2.00)	7.5 (0.43)	7.7 (0.42)

First Generation Status

Not First Generation	132 (39.0)	24 (18.3)	18 (13.8)	11.7 (0.52)	6.0 (0.15)	6.3 (0.14)
First Generation	206 (61.0)	61 (29.9)	32 (15.7)	13.2 (0.54)	5.12 (0.13)	5.9 (0.11)

Table 2: Relations between depression and risk and protective factors

Factor	Depression				Adjusted Depression ^a			
	n	Unadjusted Prevalence Ratio (95% CI)	β (95% CI)	r (95% CI)	n	Adjusted Prevalence Ratio (95% CI)	$a \beta^b$ (95% CI)	$a r^c$ (95% CI)
Discrimination ^d	335	1.33 (1.14, 1.55)	.25 (.18, .33)	.34 (.24, .43)	331	1.31 (1.12, 1.53)	.25 (.18, .33)	.35 (.25, .44)
Socioeconomic Status	333	0.82 (0.73, 0.91)	-.69 (-.99, -.39)	.24 (.13, .34)	329	0.84 (0.75, 0.95)	-.69 (-1.01, -.36)	.26 (.15, .36)
Community Standing	330	0.86 (0.77, 0.95)	-.57 (-.92, -.23)	.18 (.07, .28)	326	0.88 (0.80, 0.98)	-.53 (-.88, -.18)	.20 (.09, .30)

^a Correlation adjusted for age, gender, and race.

^b $a \beta$ is the adjusted β .

^c $a r$ is the adjusted r .

^d Discrimination Score is presented by standard deviation units

Table 3: First Generation Status and Ethnicity by Race and Ethnicity

Characteristic	Total N(%)	First Generation N (%)	Hispanic N (%)
Total	338 (100.0)	206 (61.0)	106 (31.4)
Ethnicity			
Non-Hispanic	232 (68.6)	119 (51.3)	-
Mexican	87 (25.7)	77 (88.5)	-
Other Hispanic	19 (5.6)	10 (52.6)	-
Race			
American Indian or Alaska Native	4 (1.2)	3 (75.0)	4 (100.0)
Asian	170 (50.5)	92 (54.1)	5 (2.9)
Chinese	23 (6.8)	16 (69.6)	0 (0.0)
Filipino	53 (15.7)	20 (37.7)	3 (5.7)
Vietnamese	40 (11.8)	26 (65.0)	0 (0.0)
Other Asian & Multi-Asian	54 (16.0)	30 (55.6)	2 (3.7)
Black	10 (3.0)	7 (70.0)	3 (30.0)
Mexican	61 (18.1)	56 (91.8)	61 (100.0)
Other Hispanic	8 (2.4)	6 (75.0)	8 (100.0)
Native Hawaiian or Pacific Islander	1 (0.3)	0 (0.0)	0 (0.0)
White	48 (14.2)	25 (52.1)	19 (39.6)
Other	35 (10.4)	16 (45.7)	6 (17.1)

