



**Discrimination and Mental Health Outcomes among Underrepresented College Students:
The Role of Sense of Belonging at Predominantly White Institutions (PWIs)**

David Freire, Noelle Hurd

Department of Psychology, University of Virginia

Author Note

David Freire  <https://orcid.org/0000-0003-0663-8892>

Noelle Hurd  <https://orcid.org/0000-0002-2417-5038>

Declarations

Funding

This study was funded through start-up funds awarded to the second author from the University of Virginia. The writing of this article was supported in part by a postdoctoral fellowship through the National Academy of Education and Spencer Foundation as well as a William T. Grant Foundation Scholar Award to the second author.

Conflicts of Interest/Competing Interests

The authors have no conflicts of interest to declare that are relevant to the content of this article.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval/Consent

Following approval from the investigators' university's Institutional Review Board (Protocol #2013034500), all eligible students were sent a standard recruitment email inviting them to participate in a study focused on their experiences in college. Participants provided informed consent prior to participation in the study. Parental consent was obtained for any participants under the age of 18, as well as assent from the participating student.

Correspondence concerning this article should be addressed to:

David Freire (df9gz@virginia.edu)

Department of Psychology

University of Virginia

102 Gilmer Hall

Charlottesville, VA 22903

Abstract

In this study, we explored the potential for an individual's sense of belonging to serve as an indirect pathway that could explain the noxious effects of discrimination on mental health outcomes among underrepresented college students at a predominantly White institution (PWI). Students (N = 308; 68% female) were eligible to participate if they identified as a member of a historically underrepresented racial or ethnic group, if their families were economically disadvantaged, and/or if they identified as a first-generation college student. Data were collected over three time points during students' first three academic years attending a PWI. We explored the potential for sense of belonging to serve as an indirect pathway between perceived experiences of discrimination and student depressive symptoms and experienced stress. Bootstrapped confidence intervals of the standardized indirect effect indicated that discrimination at time one indirectly predicted higher levels of depressive symptoms and perceived stress at time three via a lowered sense of belonging at time two. These results suggest that underrepresented students' sense of belonging at a PWI may explain some of the relationship between students' experiences of discrimination and negative mental health outcomes. Further exploration of the results and practical implications are discussed.

Keywords: Discrimination, Belonging, Underrepresented, Depression, College

Study Overview

Research indicates that the vast majority of college students experience elevated levels of stress related to academic responsibilities, social experiences, and other facets related to acclimation to the college environment. Additionally, the age group most likely to experience depressive symptoms are individuals between the ages of 15 and 24, which encompasses the age range of most traditional undergraduate students (Dixon et al., 2008). Minoritized college students (e.g., racial/ethnic minority students, sexual minority students, low-income students) attending elite, 4-year, predominantly White institutions of higher education (PWIs) may be at higher risk of mental health issues given that they face many of the same stressors as other college students, as well as additional unique stressors such as discrimination (i.e., the unfair treatment of an individual based on their perceived or actual membership in a social-identity group, such as gender, race, physical disability, or sexual orientation; American Psychological Association, 2019) and other marginalizing experiences, financial problems, or difficulty connecting with other students due to a lack of shared experiences (Jones et al., 2002; Means & Pyne, 2017, Woodford et al., 2014).

Minoritized students may be subjected to chronic experiences of discrimination from various campus sources (e.g., peers, faculty, staff) and this pattern of mistreatment may have a cumulative effect on students' mental health (Harwood et al., 2012; Park et al., 2020). Notably, these experiences may communicate to students that they do not belong or are not welcomed at their institution (Simmons, 2020). When marginalized students are subjected to discrimination on campus, they may struggle academically and socially and may be more likely to drop out before finishing their degree (Hernandez, 2019; McClain & Perry, 2017). Moreover, minoritized students may suffer from increased susceptibility to psychological distress stemming from these

discriminatory experiences (Sanchez & Awad, 2016). Although extensive research has been conducted on the potential effect of discrimination on mental health among minoritized college students (Desalu et al., 2019; Dorvil et al., 2020; Woodford et al., 2014), less is known about the various mechanisms that may connect experiences of discrimination to mental health among minoritized students attending PWIs (Cokley et. al 2017). In addition to attending to potential mechanisms of influence, additional research also is needed to further assess the potential longer-term impacts of experiencing discrimination early on in minoritized students' college experience. It may be, for example, that the kinds of messages of exclusion that discriminatory acts communicate may shift minoritized students' sense of belonging on their campus over time. Feeling a reduced sense of belonging may, in turn, undermine students' psychological health over time. Accordingly, the current study was undertaken with a sample of minoritized college students attending an elite PWI to better understand how experiences of discrimination during students' first year of college may have reduced their sense of belonging at the PWI during their second year of college, and how this reduced sense of belonging in their second year may have, in turn, led to an increase in their experienced stress and depressive symptoms during their third year of college.

Theoretical Frameworks

Two theoretical frameworks guided the present study on discrimination, sense of belonging, and psychological distress. The first guiding framework was minority stress theory (Meyer, 2013), which originally intended to focus on the experiences of sexual minority individuals but has been extended in recent studies to investigate experiences of discrimination across various minoritized groups (Botha & Frost, 2020; Pittman et al., 2017; Tan et al., 2019). This theory, derived from extending both stress and social stress theory, is grounded in the idea

that prejudice and discrimination across various marginalized identities (e.g., race, class, gender) can induce the same stress response as general life stressors (e.g., losing your job; Allison, 1998; Meyer, 1995; Mirowsky & Ross, 1989; Pearlin, 1999). Minority stress theory builds upon theory and research focused on the cognitive impacts of exposure to prejudice and stigmatization within American society (Allport, 1954; Crocker, et al., 1998; Goffman, 1963; Jones et al., 1984; Link & Phelan, 2001) in order to describe the impact that stress and coping in the context of stigmatization have on the mental health outcomes of minoritized individuals.

First, the model shows that an individual's minoritized identity (e.g., race, gender, sexuality) informs how they navigate their environment, with this interdependent relationship determining an individual's exposure to various stressors. Following, a distinction is made between general stressors, distal minority stress processes, and proximal minority stress processes. General stressors include normative stressors that anyone can experience such as the loss of a job or the death of a loved one. Distal minority stress processes are defined by Meyer as events and conditions that target a minoritized individual's identity through direct contact such as experiencing discrimination from peers or faculty. Meyer differentiates this from proximal minority stress processes which are conceptualized as an individual's personal perceptions and appraisals of a marginalizing experience, such as feeling unwelcomed or excluded following multiple experiences of marginalization on campus. An individual's distal minority stress processes are then shown to overlap with both general stressors and to influence proximal minority stress processes (Meyer, 2013). Meyer's minority stress theory, thus, supports the notion that experiencing discrimination in the PWI context may lead minoritized college students to experience a lower sense of belonging at that institution. Experiences of discrimination,

ultimately, may undermine students' connection to the university which may lead them to experience more stress and feel more depressed over time.

The second guiding framework was Tinto's theory of student departure (1987) which has been widely employed to study student persistence and departure within undergraduate institutions (Benjamin et al., 1993; Brown & Kurpius, 1997; Dwyer, 2017; Lee, et al., 2010; Stewart, 2015). Tinto posited that a college student's ability to integrate successfully into academic and social contexts within their college campus may determine whether or not they are able to succeed and persist within their university. This ability to successfully integrate and feel like one belongs may be essential for positive mental health and well-being within minoritized college student populations. Within the context of the current study, Tinto's theory helps us understand how experiences of discrimination inside and outside the classroom may disrupt a student's ability to successfully integrate within their campus community, reducing their sense of belonging and feelings of connectedness to their campus community. Moreover, when students receive messages of exclusion in the college context early on in their college careers, this may have a lasting impact on students' sense of whether the college is a place where they belong. Ongoing uncertainty about their status at the university may ultimately lead students to feel isolated, sad, and distressed.

Discrimination and Psychological Distress

Prior research has shown that minoritized students report experiencing interpersonal discrimination on their college campuses (Hwang & Goto, 2008; Langhout et al., 2007; Nora & Cabrera, 1996; Rankin et al., 2010). These types of incidents that minoritized students experience from peers, faculty, and staff include name calling, exclusion from social groups, harassment, and low expectations (Museus et al., 2008; Robertson et al., 2012). For example, a

study with 168 African American male student athletes attending PWIs found that students who experienced more instances of academic discrimination had lower grade point averages (GPA) than students who did not (Fuller, 2017). In another study, Latinx and Asian students' reported exposure to racialized stereotypes in the classroom was found to be associated with higher levels of depressive symptoms and anxiety over time (Juang et al., 2016). Another study investigated the mental health trajectories of gay and bisexual U.S. male college students and found associations between experiences of stigma and increased symptoms of anxiety and depression over time (Pachankis et al., 2018). Similarly, qualitative research assessing the class-based experiences of 30 low-income students (students whose family incomes were less than \$60,000) demonstrated that exposure to affluent students' financial and cultural capital created feelings of othering and expectations of exclusion among low-income students (Aries & Seider, 2005).

Psychological distress within this developmental period among minoritized college students may manifest as feeling overwhelmed and unable to cope, lacking motivation, or a sense of pervasive sadness and worthlessness (Miller & Orsillo, 2020). Experiences of discrimination and marginalization early on in a minoritized student's academic trajectory may lead to increases in some of these aforementioned negative psychological outcomes later on. For example, a longitudinal study investigating imposter phenomenon in 157 African American college students found that African American women who reported higher frequencies of racial discrimination had greater depressive symptoms 8 months later, particularly when they also endorsed higher levels of imposter syndrome (Bernard et al., 2017). Similarly, longitudinal research examining the association between perceived racial/ethnic discrimination and symptoms of posttraumatic stress disorder (PTSD) in Latinx college students found that greater experiences of discrimination over time contributed to increased symptoms of PTSD (Cha, 2017). Experiences

of psychological distress may inhibit students from being able to perform academically and within their social spheres (Granieri et al., 2021). Aside from impairing students' social and academic functioning, experiences of ongoing psychological distress may reduce their quality of life and physical health (Deasy et al., 2014). Although a number of studies have established associations between minoritized college students' experiences of discrimination on campus and their mental health outcomes, fewer studies have investigated how these associations may unfold over time with attention to potential pathways that may link discriminatory experiences to mental health.

Discrimination, Sense of Belonging, and Psychological Distress

Sense of belonging has been defined as “students’ perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group or others on campus” (Strayhorn, 2012, p. 3). Many researchers have conceptualized similar constructs of interest related to sense of belonging. Schlossberg (1989) described the importance of “mattering” and belonging in relation to a student’s need to feel important to others within their campus community. Nora (2004) emphasized the importance of “fitting in” and the importance of students feeling they would fit personally and socially within an institution. Finally, Hurtado and Carter (1997) emphasized the importance of a student’s attachment to the campus community as a whole. Sense of belonging has been shown to be an indicator for various factors of success within higher education contexts, including retention, academic and social integration, and psychological well-being (García & Garza, 2016; Hausmann et al., 2007; Hurtado & Carter, 1997; Museus et al., 2017; Museus & Maramba, 2011; Sheldon, 2012; Sheldon et al., 2011; Tovar & Simon, 2010).

Acts of discrimination within the college environment may cause minoritized students to doubt whether they deserve to be at their institutions of higher education. When students experience unfair treatment from faculty, staff, or peers (e.g., microaggressions within the classroom, racist online messages, etc.), they may experience this unfair treatment as messaging that they are not welcome at their college. Discrimination from peers may prevent marginalized students from integrating into their greater community (Del Toro & Hughes, 2020). This may cause minoritized students to feel isolated and disconnected from other students which could ultimately fuel stress and depression. In particular, initial experiences of unfair treatment during the first year of college may set the stage for a more isolated college experience with reduced sense of belonging, ultimately increasing minoritized students' psychological distress and potentially reducing their ability to succeed (Massey & Walfish, 2001). When students do not feel fully integrated into their college community, they may be vulnerable to increased stress, depression, and may even be at increased risk of suicidality (Choenarom et al., 2005; Fisher et al., 2015; Henderson et al., 2019). Discriminatory experiences and subsequent feelings of isolation and unbelonging are added stressors in addition to the normative academic and social pressures from being a college student, and this may overwhelm students and lead to increases in negative psychological symptoms (Raymond & Sheppard, 2017; Stebleton et al., 2014).

Previous research investigating the potential association between sense of belonging and the psychological adjustment of racial/ethnic minority college students has demonstrated a negative association between sense of belonging and depressive symptoms, and positive associations between sense of belonging and self-worth, scholastic competence, and social acceptance (Gummadam et al., 2016). Feeling like one belongs within their college environment may be pivotal to a student's social and emotional success as they begin their academic journey

at an institution of higher education (Freeman et al., 2007; Strayhorn, 2008). Research with Latina undergraduate students discovered that those with an increased sense of belonging had lower levels of psychological distress, indicating that it could serve as a protective factor from various external stressors (Sims et al., 2020). Similarly, another study assessing 150 students' sense of belonging, mental health, and use of mental health services found that first-generation students tended to report lower levels of belonging, greater symptoms of depression and stress, and lower use of mental health services compared to continuing-generation students (Stebbleton et al., 2014). Taken together, previous research suggests that sense of belonging at one's institution may shape college students' mental health trajectories over time.

A limited amount of research has reflected associations between experiences of marginalization, sense of belonging, and various mental health outcomes. Researchers investigating the effects of racialized aggressions on social media among 692 students of color discovered that experiencing racial aggression online was associated with greater symptoms of mood and anxiety disorders, with sense of belonging being negatively associated with psychological distress, as well (McCready et al., 2021). Similar research investigating the experiences of 1500 lesbian, gay, or bisexual college students found that stressors associated with sexual minority status (e.g., discrimination based on sexual orientation) were negatively associated with sense of college belongingness, which, in turn, was negatively associated with suicidality (Roberts, 2018). Notably, the limited amount of research that has focused on exploring this potential indirect pathway from experiences of discrimination to mental health through sense of belonging has largely been cross-sectional, precluding researchers from establishing temporal precedence in these associations and better understanding how these associations may unfold over time. Accordingly, this study aimed to assess the potential for

discrimination early on in a student's college journey to negatively affect their mental health in subsequent years through decrements in their sense of belonging.

Current Study

The current study examined associations between experiences of discrimination, minoritized students' sense of belonging, and their experienced stress and depressive symptoms across their first three years of college. Specifically, this study examined how experiences of discrimination during the first year of college may have reduced students' sense of belonging during their second year of college and how their reduced sense of belonging may have, in turn, increased their depressive symptoms and experienced stress during their third year of college. While previous studies have found associations between college students' sense of belonging and psychological outcomes, the current study is one of the first to employ a longitudinal model to investigate this potential indirect pathway. We hypothesized that students who experienced discrimination during their first year of college would report increased levels of depressive symptoms and experienced stress during their third year. Moreover, we hypothesized that experiences of discrimination during their first year would be indirectly associated with greater depressive symptoms and experienced stress during the third year via reduced sense of belonging during their second year.

Several potential confounding variables were accounted for in the current study. Extraversion, neuroticism, and agreeableness were included as these personality variables have been associated with sense of belonging, depressive symptoms and experienced stress (Grav et al., 2012; Harris et al., 2017; McCrae, 1990; Nezlek et al., 2012; Seidman, 2013; Uliaszek et al., 2010). Additionally, we also accounted for specific demographic characteristics, including race/ethnicity, first-generation status, and gender. Identifying as male gendered or White, in

addition to having parents with the financial and cultural capital to help navigate institutions of higher education, may afford students an easier path towards integrating into their PWI environment, and the research reflects this differential experience (Duran et al., 2020; Means & Pyne, 2017; Rainey et al., 2018). Furthermore, previous studies have shown that being part of certain privileged groups (specifically being male, White, or continuing-generation) reduces the likelihood of marginalizing experiences, potentially leading to differences in the prevalence of depressive symptoms (Girgus & Yang, 2015; George & Lynch, 2003; Jenkins et al., 2013). Finally, in order to isolate the potential effect of discrimination on experienced stress and depressive symptoms, a stressful event composite variable was used as a covariate to account for other general life stressors that minoritized students may have experienced. Although our study sample only included students who were racial/ethnic minorities, first-generation college students, or economically disadvantaged, students only had to meet one of the three eligibility requirements to participate in this study. Thus, our sample included White first-generation college students as well as racial/ethnic minority students who were continuing-generation college students and/or from middle-class families. Accordingly, we accounted for the potential effects of race, gender, and first-generation status in our analyses. Our full hypothesized model is depicted in Figure 1.

Methods

Participants and Procedure

The current investigation utilized data from a longitudinal study focused on the experiences of minoritized students attending a predominantly white institution (PWI). Participants were eligible to participate if they were a first-generation college student, qualified for the full amount of the federal Pell grant (i.e., need-based grant funding for higher education

from the U.S. government), or identified as a member of a minoritized racial/ethnic minority group (i.e., Hispanic/Latino, Black/African American, Native Hawaiian/Pacific Islander, or American Indian/Alaskan Native). At the first time point of the study (Fall 2013), 340 first-year college students participated in the study (44% response rate of all eligible students). For the purpose of the current investigation, we only included participants who remained enrolled at the institution for the duration of the study ($n = 308$). This was due to the study's aim of investigating students' sense of belonging at their institution as a primary study variable, meaning it would not have made sense to include students who were no longer enrolled at the institution.

The average age of participants in the current study during their first year of college was 18.11 years old ($SD = .36$). Sixty-nine percent of participants identified as women, 31% as men, and 2 participants identified as gender non-binary. The annual family income of participants ranged from less than 4,900 USD to above 105,000 USD (Median = 65,000 - 74,999 USD). The racial distribution obtained through self-identified reports from participants included 28% Black/African American, 17% Asian, 11% Hispanic/Latinx, 21% multiracial, and 23% White. Forty percent of participants indicated membership in two or more eligibility categories (e.g., first-generation college student and minoritized racial/ethnic minority).

Following approval from the investigators' university's Institutional Review Board (Protocol #2013034500), all eligible students were sent a standard recruitment email inviting them to participate in a study focused on their experiences in college. The email did not include eligibility criteria to reduce the likelihood of selection bias. Participants provided informed consent prior to participation in the study. Parental consent was obtained for any participants under the age of 18, as well as assent from the participating student. A certificate of

confidentiality from the National Institutes of Health (NIH) was obtained to further ensure the confidentiality of participants' responses. All consenting students completed the study in a laboratory space using an iPad to answer survey questions. Following the first time point (Fall 2013), surveys were administered in the middle of each subsequent Spring semester from 2014 to 2017. The survey included various measures of academic, social, and emotional experiences and outcomes. The survey lasted approximately one hour, and participants were compensated with a \$20 Visa gift card during the first year of study participation. In each consecutive academic year, compensation increased by \$5. Retention rate for the study was greater than 93% across all five data collection points.

Measures

Descriptive statistics for all study variables can be seen in Table 1.

Experiences of Discrimination

Participants' experiences of discrimination were measured during the 2014 Spring semester and were assessed using the Everyday Discrimination Scale (EDS; 9-item measure; Williams et al., 1997). For each of the items, participants were asked how often they experienced various potential scenarios of discrimination in their daily life over the past year. Examples of potential scenarios included "People act as if you are not as good as they are" and "You are called names or insulted." Response options ranged from 1 ("Less than once a year") to 5 ("Almost every day"). Participant responses were then averaged to create a score that reflected students' overall frequency of discriminatory experiences. Higher scores indicated higher amounts of discriminatory experiences. Participants were then asked to indicate which aspect of their identity they believed to be the main reason for experiencing discrimination. Response options included: ancestry/national origin/ethnicity, gender/sex, race, age, height, skin color,

sexual orientation, weight, income/education level, religion, disability, and an open-ended response for reasons not listed. Participants could select more than one response option. The Cronbach's alpha for the nine items was 0.90.

We conducted analyses to confirm that students' self-reported identities and reporting of specific reasons for experiencing discrimination showed an association between marginalized identity status and student's reporting of that identity status as a reason for experiencing discrimination (e.g., students of color were the overwhelming majority of those reporting race or ethnicity as a reason for experiencing discrimination). We confirmed this was true for all marginalized identities (to ensure that our variable did not reflect students with privileged identities reporting unfair treatment based on a privileged identity). See Billingsley & Hurd (2019) for full reporting of each reported source of unfair treatment and participants' identity statuses.

Sense of Belonging

Participants' sense of belonging at their institution was measured during the 2014 and 2015 Spring semesters and was assessed using the Psychological Sense of School Membership (PSSM) Scale (PSSM; 18-item measure; Goodenow, 1993). For each of the items, participants were asked to indicate how true a number of statements related to belonging and acceptance at their university were for them. Examples of statements included "People here notice when I'm good at something" and "Other students in this school take my opinions seriously." Response options ranged from 1 ("Not at all true") to 5 ("Completely true"). All negatively worded items were reverse scored. Participant responses were then averaged to obtain a score that reflected a student's perceived belonging in the university environment. Higher scores indicated higher

levels of belonging at the university by the participants. The Cronbach's alpha for these 18 items was 0.92.

Depressive Symptoms

Depressive symptoms were assessed during the 2015 and 2016 spring semesters using the Beck Depression Inventory- Second Edition (BDI-II; A. T. Beck, Steer, & Brown, 1996), omitting an item concerning suicidality for the purposes of this study (due to issues with preserving participants' confidentiality). The BDI-II has strong psychometric properties and has been validated on racial and ethnic minority samples as well as college populations (Whisman & Richardson, 2015; Whisman et al. 2013). Participants were instructed to respond to 20 items by indicating the intensity or frequency of various types of depressive symptoms over the previous 2 weeks. Examples of items included sadness, pessimism, past failure, and loss of pleasure. Response options ranged from 0 to 3. Responses were summed to create a composite score for depressive symptoms. According to the BDI-II scoring manual, scores of 14 through 19 may be indicative of mild levels of depression, whereas scores of 20 or greater may reflect moderate levels of depression. The Cronbach's alpha for these 20 items was 0.92.

Experienced Stress

Participants' level of stress was assessed during the 2015 and 2016 spring semesters using the Perceived Stress Scale (Cohen, et al., 1983). The perceived stress scale is a 14-item measure that assesses physical symptoms and appraisal of stressful events. For each item, participants were asked to indicate how often they felt or thought a certain way in the past month. Examples of items included "How often have you felt that you were in control of your life?" and "How often have you dealt successfully with daily hassles?". Response options ranged from 1 ("Never") to 5 ("Very Often"). All negatively worded items were reverse scored.

Participant responses were then averaged to yield a composite stress variable. Higher scores indicated higher levels of stress by the participants. The Cronbach's alpha for these 14 items was 0.88.

Personality Traits

Extraversion, neuroticism, and agreeableness were assessed in Fall 2013 using the Big Five Inventory (John and Srivastava, 1999). All traits were measured once (at the outset of the study), as personality traits are anticipated to remain stable over time among adults (McCrae & Costa, 1994). Extraversion and neuroticism were measured using 8-item subscales, and agreeableness was measured using a 9-item subscale. Participants were asked to indicate the extent to which they agreed with statements describing themselves as extroverted (e.g., "I see myself as someone who is outgoing and sociable"), neurotic (e.g., "I see myself as someone who worries a lot"), and agreeable (e.g., "I see myself as someone who is considerate and kind to almost everyone"). Response options ranged from 1 ("Disagree Strongly") to 5 ("Agree Strongly"). All negatively worded items were reverse scored. Subscales were averaged to create composites of each construct such that higher scores reflected higher average levels of the personality trait. The Cronbach's alpha for the extraversion, agreeableness, and neuroticism subscales were 0.89, 0.84, and 0.81, respectively.

Stressful Life Events

In the Spring of 2014, participants were asked to report if they had experienced any major life events in the past 30 days using a modified version of the Undergraduate Stress Questionnaire (Crandall, Preisler, & Ausprung, 1992). This consisted of a survey item that asked participants to select from a predetermined list of situations that would have caused them undue stress within the past thirty days. Examples of choices included "you became seriously ill or

disabled,” “you were the victim of a crime,” and “a close relative or friend died.” Participant responses were summed to yield a total number of stressful events in the past month. Higher scores indicated higher number of stressful events that were experienced by the participant.

Demographics

Participants’ demographic information was collected during Fall 2013. Participants provided information regarding their background and demographics including their gender and race/ethnicity. Additionally, first-generation status was determined based on their college application data. Prior to data analyses, dichotomous variables were created to be able to account for the potential effects of Whiteness (0 = student of color, 1 = White student), first-generation college status (0 = continuing-generation college, 1 = first-generation college), and male gender (0 = female or other, 1 = male) to assess for any differences that may be associated with privileged identities within the PWI educational context. Student enrollment information was collected from the university every semester and only those who indicated ongoing enrollment at the university throughout the course of the study were included in the current analyses.

Data Analyses

Figure 1 illustrates the full hypothesized model. All analyses were conducted using R-Studio Version 1.2.5033. To handle a small amount of missing data across time points (<7%), full information maximum likelihood (lavaan package in R 1.2.5033) was used (Enders & Bandalos, 2001). First, a series of correlations were conducted to test the associations among the primary study variables. Path analysis was then conducted using composite variables for the constructs of interest (Lleras, 2005). Composite variables for primary study variables whose data distribution differed from the normal distribution were subjected to statistical transformations as originally they exhibited excessive skewness which complicated model convergence and fit

(Smardz et al., 2019). Following these transformations, there were no significant differences in the data from the normal distribution. The lavaan package (version 0.6-7) in R was used to conduct the path analysis. Model fit was assessed using the χ^2 statistic, comparative fit index (CFI), the Tucker-Lewis index (TLI) and the root mean square error of approximation (RMSEA). Additionally, bias-corrected confidence intervals (CI) were constructed around the coefficient of indirect effects using a bootstrapping method. The indirect effect was deemed significant if the 95% CI surrounding the standardized indirect effect did not include zero.

Results

Correlations

Correlations were completed for primary study variables prior to statistical transformation as to maintain their interpretability. Correlations among study variables appear in Table 2. All significant correlations were in the hypothesized directions. Spring 2014 discrimination was negatively correlated with spring 2015 sense of belonging and positively associated with spring 2016 depressive symptoms and spring 2016 experienced stress. Spring 2015 sense of belonging was negatively correlated with spring 2016 depressive symptoms and spring 2016 experienced stress.

Path Model

The results of the final trimmed path analysis are shown in Table 3. The model showed acceptable fit to the data, $\chi^2 (df = 12, N = 308) = 35.32, p < .001, CFI = 0.97, TLI = 0.93, RMSEA = 0.09$ [90% CI for RMSEA (.05, .12)]. Given that participant gender, race, extraversion, first-generation status, and spring 2014 stressful life events were not associated with any study variables and that their inclusion in the model reduced overall model fit, we removed them from our model. To improve model fit (i.e., model trimming), we also removed other paths from

control variables to primary outcome variables when they were not statistically significant. Due to the fact that the sample was relatively large and the χ^2 statistic is influenced by sample size, CFI, TLI, and RMSEA were determined to be the best measures to assess model fit. All stability paths from the primary study variables at the previous time point were significant and in the predicted directions. Spring 2014 experiences of discrimination were negatively associated with spring 2015 sense of belonging. Spring 2015 sense of belonging was negatively associated with spring 2016 depressive symptoms and spring 2016 experienced stress. Spring 2014 experiences of discrimination were directly associated with spring 2016 experienced stress. The bootstrapped CI of the standardized indirect effect indicated that spring 2014 experiences of discrimination were indirectly positively associated with spring 2016 depressive symptoms via reduced spring 2015 sense of belonging (standardized indirect effect = .06; 95% CI for unstandardized indirect effect = [.004, .12]). Additionally, the bootstrapped CI of the standardized indirect effect indicated that spring 2014 experiences of discrimination were indirectly positively associated with spring 2016 experienced stress via reduced spring 2015 sense of belonging (standardized indirect effect = .04; 95% CI for unstandardized indirect effect = [.003, .08]).

Discussion

This study extends our understanding of the potential negative effects of interpersonal discrimination on the mental health outcomes of minoritized students at PWIs by demonstrating that experiencing discrimination during a student's first year may have lasting effects that lead to negative developmental outcomes later in their academic trajectory. By employing a longitudinal design, this study was one of the first to investigate how experiences of discrimination during a student's first year may lead to a lowered sense of belonging during their second year, and how this lowered belonging ultimately may lead to higher rates of depressive symptoms and

experienced stress even further on in a student's time at their institution. Experiences of discrimination may be particularly harmful during a minoritized student's first year of college, as this transition period consists of acclimating to a new environment away from home while attending to the primary goals of finding one's community and establishing relationships with one's peers. Students who are subjected to hostility, unfair treatment, and negative stereotypes from their community members during their first year may question whether they belong at their institution. Experiencing messages of exclusion and disrespect so early on in their college trajectory may lead students to feel isolated and distrustful of those around them, and these added pressures may culminate later on in exhaustion and depression among students who are already contending with the normative academic and social responsibilities of navigating institutions of higher education (Beagan et al., 2021; Pichardo et al., 2021).

The college years are meant to be a time period of growth, exploration, and independence accompanied by the establishment of peer relationships, career opportunities, and social status (Chan, 2016). For minoritized students experiencing discrimination at their institution, their college experiences may be more negative and burdensome. This may be a time where they are more focused on insulating themselves from mistreatment by others in their new academic environment rather than growing and freely exploring their surroundings. This may be particularly true for students who are coming from high schools and communities that may have been more diverse and inclusive. The PWI environment may stifle or curtail their normative developmental trajectory and prevent them from fully embracing and celebrating all their social identities (Peña-Talamantes, 2017; Rodgers & Summers, 2008). Experiences of discrimination also may prevent students from taking advantage of all the social and interpersonal activities that institutions of higher education have to offer which may lead them to miss out on opportunities

to connect with others who share their experiences or interests (Strayhorn, 2018, Xie & Xiao, 2018). The more isolated students become, the more likely they are to experience greater stress and depression (Hagerty et al., 1996).

In order to alleviate this burden, institutions of higher education must invest in institutional policies and create campus climates that more explicitly address the biases that drive acts of discrimination and provide more accountability to discourage acts of discrimination within the campus community. More contemporary conceptualizations of student integration and belonging have focused on shifting the responsibility onto the college in aiding students' successful integration into existing institutional structures by promoting a welcoming and supportive environment (Johnson, 2007). Thus, the onus is not on minoritized students to negotiate a hostile environment and expend all of their energy trying to adapt to a discriminatory campus climate; rather, institutions of higher education have the responsibility of creating an environment where all students feel welcomed, celebrated, and are able to thrive. The findings from the current study speak to the need for more intentional efforts from university administrators, faculty, and staff to invest in institutional efforts that can reduce experiences of discrimination and marginalization on college campuses.

A potential avenue for change that has been gaining traction among institutions of higher education is the charge to create targeted programming that fosters critical dialogues between students who hold different identities and experiences. One of these types of initiatives, intergroup dialogues, brings students together within a facilitated learning environment to promote student growth, empathy, and perspective taking (Zúñiga et al., 2007). Importantly, IGD centers social justice pedagogy while facilitating cross-group interactions and intentionally incorporates practices to reduce power hierarchies and other problematic dynamics that often

emerge when engaging across difference. This form of training aims to highlight the similarities and differences among students in the context of increased awareness of societal power structures, with the ultimate goal of building stronger intergroup bonds, fostering allyship, and advancing social justice (Nagdi et al., 2009, Nagda et al., 2012; Rodriguez et al., 2018). Research shows that students who engage in these facilitated dialogue programs have increased understanding of structural factors that contribute to inequality; greater empathy; increased drive to bridge differences; and greater motivation to influence social policy and work to correct social and economic inequality (Nagdi et al., 2009). By facilitating intergroup relationships and advancing social justice pedagogy, institutions of higher education may reduce the likelihood of minoritized students being exposed to experiences of discrimination and the subsequent negative mental health outcomes that follow.

In addition to fostering intergroup dialogues, institutions of higher education also must work to be more intentional in their efforts to promote belonging and student integration. This may include paying greater attention to traditions rooted in histories of exclusion and the creation of new traditions and rituals that fully embrace and celebrate the lived experiences of a diverse student body (Kearns, 2020). This also could include attention to physical spaces and structures such as buildings and monuments that commemorate racist slave owners (Gusa, 2010; Sue et al., 2007). It is certainly plausible that these physical spaces are further informing and shaping the campus climate and influencing norms around acceptable interpersonal interactions. Accordingly, institutions of higher education should seize every opportunity to make their physical and social spaces welcoming and inclusive to all students.

Changing the institutional culture also may involve core changes to curriculum requirements, including requiring courses focused on social justice during students' first year at

the university. The current study shows that experiences of discrimination during the first year can have long-lasting ramifications for minoritized students' well-being during their college years. This points to the need for early intervention with college students to facilitate more supportive and welcoming environments from the very beginning of students' college careers rather than waiting until students are in their third or fourth year of college (Tinto, 2005).

Institutions must work to intervene during a student's first years as this stage in a student's academic development is essential for laying the groundwork for their perception of community and institutional support and acceptance (Reason et al., 2007). Moreover, institutions of higher education also could better equip students with privileged identities to intervene when they witness acts of discrimination against their minoritized peers (Hurd et al., 2021).

Limitations

The current investigation has important limitations that are important to acknowledge. First, the current study was observational, and as such, we were unable to establish any causal associations between the primary variables of interest. Additionally, we relied heavily on self-reported data from participants, resulting in possible issues of shared method variance. However, given that the participants of the study were uniquely situated to report on the constructs of interest and that we were able to account for autoregressive effects from the previous time point, we feel more confident in our interpretations. Moreover, we attended to several potential confounds (e.g., race, gender, personality variables) to further strengthen our confidence in our study findings.

It also is important to note that our assessment of experiences of discrimination may have been relatively limited in scope. While we were able to use a well-established measure to capture minoritized students' experiences at a PWI, this measure may not have comprehensively

captured all types of discriminatory experiences that students may have endured. Moreover, the measure we employed only focused on interpersonal discrimination and future research is needed to attend to the detrimental effects of other types of discrimination (e.g., institutional discrimination). Additionally, the current study did not attend to resilience-promoting factors that could protect against the noxious effects of discrimination during a student's first year (e.g., receiving social support, utilizing campus resources). Further research can build on the current findings by employing mixed methods to better understand the full nature of discriminatory experiences that minoritized students experience at PWIs, as well as the various strategies and resources they deploy to cope with these experiences. Lastly, caution should be implemented when attempting to generalize this study's findings given that this study was conducted at one PWI in a specific geographic region (the Southeastern U.S.) and these findings may not replicate among minoritized students attending geographically diverse PWIs. While we predict that our findings are able to generalize across various educational settings, replication of this study across various PWIs in diverse geographic locations would strengthen our ability to generalize our conclusions from the current study findings. Despite these limitations, this study provides insights into one potential pathway connecting experiences of discrimination to negative mental health outcomes, allowing us to further understand how discrimination experienced during the first year of college may undermine student well-being over time.

Conclusion

Collectively, the findings from the current study further our understanding of minoritized students experiences at PWIs and may provide more insight into why minoritized students may struggle and underachieve in these specific educational settings (Dennehy et al., 2018). When students are treated with disrespect and hostility by their community members within their first

year at the university, this can inspire feelings that they do not belong at their PWI and these feelings may compound and extend beyond their first year, leading to lasting impacts on their mental health outcomes. Ultimately, colleges and universities entice students to enroll with the promise of not just a life-changing educational degree but also with the promise of life-changing social experiences that will set them up for a more successful future. In order to honor these promises, it is clear that institutions of higher education will have to be more proactive in creating institutional climates that advance diversity, equity and inclusion, and deter acts of interpersonal discrimination.

Acknowledgements

The authors would like to thank the students for participating in the study and the members of the research team who assisted with data collection.

References

- Allison, K. W. (1998). Stress and oppressed social category membership. In J. K. Swim & C. Stangor (Eds.), *Prejudice: The target's perspective* (pp. 145–170). San Diego, CA: Academic Press. <https://doi.org/10.1016/B978-012679130-3/50042-9>
- Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- American Psychological Association. (2019, October 31). *Discrimination: What it is, and how to cope*. <http://www.apa.org/topics/racism-bias-discrimination/types-stress>
- Aries, E., & Seider, M. (2005). The interactive relationship between class identity and the college experience: The case of lower income students. *Qualitative Sociology*, 28(4), 419-443. <https://doi.org/10.1007/s11133-005-8366-1>
- Beagan, B. L., Mohamed, T., Brooks, K., Waterfield, B., & Weinberg, M. (2021). Microaggressions experienced by LGBTQ academics in Canada: “just not fitting in... it does take a toll”. *International Journal of Qualitative Studies in Education*, 34(3), 197-212. <https://doi.org/10.1080/09518398.2020.1735556>
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck depression inventory-II*. 1996. San Antonio, TX: Psychological Corporation, 2.
- Benjamin, D., Chambers, S., & Reiterman, G. (1993). A focus on American Indian college persistence. *Journal of American Indian Education*, 32(2), 24–40. <https://www.jstor.org/stable/24398303>
- Bernard, D. L., Lige, Q. M., Willis, H. A., Sosoo, E. E., & Neblett, E. W. (2017). Impostor phenomenon and mental health: The influence of racial discrimination and gender. *Journal of Counseling Psychology*, 64(2), 155-166. <https://doi.org/10.1037/cou0000197>

- Billingsley, J. T., & Hurd, N. M. (2019). Discrimination, mental health and academic performance among minoritized college students: The role of extracurricular activities at predominantly White institutions. *Social Psychology of Education, 22*(2), 421-446. <https://doi.org/10.1007/s11218-019-09484-8>
- Botha, M., & Frost, D. M. (2020). Extending the minority stress model to understand mental health problems experienced by the autistic population. *Society and Mental Health, 10*(1), 20-34. <https://doi.org/10.1177/2156869318804297>
- Brown, L., & Kurpius, R. (1997). Psychosocial factors influencing the academic persistence of American Indian college students. *Journal of College Student Development, 38*(1), 3–12.
- Cha, C. H. (2017). *A longitudinal study of discrimination and post-traumatic stress among Latina/o college students* [Unpublished doctoral dissertation]. New Mexico State University.
- Chan, R. Y. (2016). Understanding the purpose of higher education: An analysis of the economic and social benefits for completing a college degree. *Journal of Education Policy, Planning and Administration, 6*(5), 1-40. Retrieved from: <http://www.jeppa.org>.
- Choenarom, C., Williams, R. A., & Hagerty, B. M. (2005). The role of sense of belonging and social support on stress and depression in individuals with depression. *Archives of Psychiatric Nursing, 19*(1), 18-29. <https://doi.org/10.1016/j.apnu.2004.11.003>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress, *Journal of Health and Social Behavior, 24*(4), 385–396. <https://www.jstor.org/stable/2136404>
- Cokley, K., Smith, L., Bernard, D., Hurst, A., Jackson, S., Stone, S., ... & Roberts, D. (2017). Impostor feelings as a moderator and mediator of the relationship between perceived

- discrimination and mental health among racial/ethnic minority college students. *Journal of Counseling Psychology*, 64(2), 141-154. <https://doi.org/10.1037/cou0000198>
- Crandall, C. S., Preisler, J. J., & Aussprung, J. (1992). Measuring life event stress in the lives of college students: The Undergraduate Stress Questionnaire (USQ). *Journal of Behavioral Medicine*, 15(6), 627-662. <https://doi.org/10.1007/BF00844860>
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The Handbook of Social Psychology* (4th ed., (pp. 504–553). Boston: McGraw-Hill.
- Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & Mcnamara, P. M. (2014). Psychological distress and lifestyle of students: Implications for health promotion. *Health Promotion International*, 30(1), 77-87. <https://doi.org/10.1093/heapro/dau086>
- Dennehy, T. C., Smith, J. S., Moore, C., & Dasgupta, N. (2018). Stereotype threat and stereotype inoculation for underrepresented students in the first year of college. In R. S. Feldman (Ed.), *The first year of college: Research, theory, and practice on improving the student experience and increasing retention* (pp. 309–344). Cambridge University Press.
- Del Toro, J., & Hughes, D. (2020). Trajectories of discrimination across the college years: Associations with academic, psychological, and physical adjustment outcomes. *Journal of Youth and Adolescence*, 49(4), 772-789. <https://doi.org/10.1007/s10964-019-01147-3>
- Desalu, J. M., Kim, J., Zaso, M. J., Corriders, S. R., Loury, J. A., Minter, M. L., & Park, A. (2019). Racial discrimination, binge drinking, and negative drinking consequences among black college students: Serial mediation by depressive symptoms and coping motives. *Ethnicity & Health*, 24(8), 874-888. <https://doi.org/10.1080/13557858.2017.1380170>

- Dixon, S. K., & Kurpius, S. E. R. (2008). Depression and college stress among university undergraduates: Do mattering and self-esteem make a difference?. *Journal of College Student Development, 49*(5), 412-424. doi:10.1353/csd.0.0024.
- Dorvil, S., Vu, M., Haardorfer, R., Windle, M., & Vu, C. (2020). Experiences of adverse childhood events and racial discrimination in relation to depressive symptoms in college students. *College Student Journal, 54*(3), 295-308.
- Duran, A., Dahl, L. S., Stipeck, C., & Mayhew, M. J. (2020). A critical quantitative analysis of students' sense of belonging: Perspectives on race, generation status, and collegiate environments. *Journal of College Student Development, 61*(2), 133-153. doi:10.1353/csd.2020.0014.
- Dwyer, T. (2017). Persistence in higher education through student–faculty interactions in the classroom of a commuter institution. *Innovations in Education and Teaching International, 54*(4), 325-334. <https://doi.org/10.1080/14703297.2015.1112297>
- Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural equation Modeling, 8*(3), 430-457. https://doi.org/10.1207/S15328007SEM0803_5
- Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of belonging in college freshmen at the classroom and campus levels. *The Journal of Experimental Education, 75*(3), 203-220. <https://doi.org/10.3200/JEXE.75.3.203-220>
- Fisher, L. B., Overholser, J. C., Ridley, J., Braden, A., & Rosoff, C. (2015). From the outside looking in: Sense of belonging, depression, and suicide risk. *Psychiatry, 78*(1), 29-41. <https://doi.org/10.1080/00332747.2015.1015867>

- Fuller, R. D. (2017). Perception or reality: The relationship between stereotypes, discrimination, and the academic outcomes of African American male college athletes. *Journal of Sport and Social Issues, 41*(5), 402-424. <https://doi.org/10.1177/0193723517719664>
- García, H. A., & Garza, T. (2016). Retaining Latino males in community colleges: A structural model explaining sense of belonging through socio-academic integration. *Journal of Applied Research in the Community College, 23*(2), 41-58.
- George, L. K., & Lynch, S. M. (2003). Race differences in depressive symptoms: A dynamic perspective on stress exposure and vulnerability. *Journal of Health and Social Behavior, 44*(3), 353-369. <https://doi.org/10.2307/1519784>
- Girgus, J. S., & Yang, K. (2015). Gender and depression. *Current Opinion in Psychology, 4*, 53-60. <https://doi.org/10.1016/j.copsyc.2015.01.019>
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. New York: Touchstone.
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools, 30*(1), 79-90. [https://doi.org/10.1002/1520-6807\(199301\)30:1<79::AID-PITS2310300113>3.0.CO;2-X](https://doi.org/10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X)
- Granieri, A., Franzoi, I. G., & Chung, M. C. (2021). Editorial: Psychological distress among university students. *Frontiers in Psychology, 12*, 647940. <https://doi.org/10.3389/fpsyg.2021.647940>
- Grav, S., Stordal, E., Romild, U. K., & Hellzen, O. (2012). The relationship among neuroticism, extraversion, and depression in the HUNT Study: In relation to age and gender. *Issues in Mental Health Nursing, 33*(11), 777-785. <https://doi.org/10.3109/01612840.2012.713082>

- Gummadam, P., Pittman, L. D., & Ioffe, M. (2016). School belonging, ethnic identity, and psychological adjustment among ethnic minority college students. *The Journal of Experimental Education, 84*(2), 289-306.
<https://doi.org/10.1080/00220973.2015.1048844>
- Gusa, D. L. (2010). White institutional presence: The impact of Whiteness on campus climate. *Harvard Educational Review, 80*(4), 464-490.
<https://doi.org/10.17763/haer.80.4.p5j483825u110002>
- Hagerty, B. M., Williams, R. A., Coyne, J. C., & Early, M. R. (1996). Sense of belonging and indicators of social and psychological functioning. *Archives of Psychiatric Nursing, 10*(4), 235-244. [https://doi.org/10.1016/S0883-9417\(96\)80029-X](https://doi.org/10.1016/S0883-9417(96)80029-X)
- Harris, K., English, T., Harms, P. D., Gross, J. J., Jackson, J. J., & Back, M. (2017). Why are extraverts more satisfied? Personality, social experiences, and subjective well-being in college. *European Journal of Personality, 31*(2), 170-186.
- Harwood, S. A., Huntt, M. B., Mendenhall, R., & Lewis, J. A. (2012). Racial microaggressions in the residence halls: Experiences of students of color at a predominantly White university. *Journal of Diversity in Higher Education, 5*(3), 159.
<https://doi.org/10.1037/a0028956>
- Hausmann, L. R., Schofield, J. W., Woods, R. L. (2007). Sense of belonging as a predictor of intention to persist among African American and White first-year college students. *Research in Higher Education, 48*, 803–839. <https://doi.org/10.1007/s11162-007-9052-9>
- Henderson, N. A., Palmer, C. A., & Thomas, A. (2019). Life stress, sense of belonging and sleep in American Indian college students. *Sleep Health, 5*(4), 352-358.
<https://doi.org/10.1016/j.sleh.2019.04.001>

Hernandez, J. C. (2019). Leaking pipeline: Issues impacting Latino/a college student retention.

Minority Student Retention, 99-122. Routledge.

Hurd, N. M., Trawalter, S., Jakubow, A., Johnson, H. E., & Billingsley, J. T. (2021). Online racial discrimination and the role of White bystanders. *American Psychologist*. Advance online publication. <https://doi.org/10.1037/amp0000603>

Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education*, 70(4), 324-345. <https://doi.org/10.2307/2673270>

Hurtado, S., & Ruiz Alvarado, A. (2015). Discrimination and bias, underrepresentation, and sense of belonging on campus. *Higher Education Research Institute*. <https://vtechworks.lib.vt.edu/handle/10919/83064>

Hwang, W. C., & Goto, S. (2008). The impact of perceived racial discrimination on the mental health of Asian American and Latino college students. *Cultural Diversity and Ethnic Minority Psychology*, 14(4), 326-335. <https://doi.org/10.1037/1099-9809.14.4.326>

Jenkins, S. R., Belanger, A., Connally, M. L., Boals, A., & Durón, K. M. (2013). First-generation undergraduate students' social support, depression, and life satisfaction. *Journal of College Counseling*, 16(2), 129-142. <https://doi.org/10.1002/j.2161-1882.2013.00032.x>

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. *Handbook of Personality: Theory and research*, 2(1999), 102-138. Guildford Press.

Jones, E. E., Farina, A., Hestrof, A. H., Markus, H., Miller, D. T., & Scott, R. A. (1984). *Social stigma: The psychology of marked relationships*. New York: Freeman.

- Jones, L., Castellanos, J., & Cole, D. (2002). Examining the ethnic minority student experience at predominantly White institutions: A case study. *Journal of Hispanic Higher Education, 1*(1), 19-39. <https://doi.org/10.1177/1538192702001001003>
- Juang, L., Ittel, A., Hoferichter, F., & Gallarin, M. M. (2016). Perceived racial/ethnic discrimination and adjustment among ethnically diverse college students: Family and peer support as protective factors. *Journal of College Student Development, 57*(4), 380-394. doi:10.1353/csd.2016.0048.
- Kearns, G. (2020). Topple the racists 1: Decolonizing the space and institutional memory of the university. *Geography, 105*(3), 116-125.
- Langhout, R. D., Rosselli, F., & Feinstein, J. (2007). Assessing classism in academic settings. *The Review of Higher Education, 30*(2), 145-184. doi:10.1353/rhe.2006.0073.
- Lee, J., Donlan, W., & Brown, E. F. (2010). American Indian/Alaskan Native undergraduate retention at predominantly White institutions: An elaboration of Tinto's theory of college student departure. *Journal of College Student Retention: Research, Theory and Practice, 12*(3), 257–276. <https://doi.org/10.2190/CS.12.3.a>
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology, 27*, 363-385. <https://doi.org/10.1146/annurev.soc.27.1.363>
- Lleras, C. (2005). Path Analysis. *Encyclopedia of Social Measurement* (pp. 25-30). Elsevier Inc.. <https://doi.org/10.1016/B0-12-369398-5/00483-7>
- Massey, R., & Walfish, S. (2001). Stresses and strategies for underrepresented students: Gender, sexual, and racial minorities. *Succeeding in graduate school: The career guide for psychology students* (pp. 141–155). Lawrence Erlbaum Associates Publishers.

- McClain, K. S., & Perry, A. (2017). Where did they go: Retention rates for students of color at predominantly White institutions. *College Student Affairs Leadership*, 4(1), 1-10.
<https://scholarworks.gvsu.edu/csal/vol4/iss1/3>
- McCrae, R. R. (1990). Controlling neuroticism in the measurement of stress. *Stress Medicine*, 6(3), 237-241. <https://doi.org/10.1002/smi.2460060309>
- McCrae, R. R., & Costa, P. T. (1994). The stability of personality: Observation and evaluations. *Current Directions in Psychological Science*, 3(6), 173–175.
<https://doi.org/10.1111/1467-8721.ep10770693>
- McCready, A. M., Rowan-Kenyon, H. T., Barone, N. I., & Martínez Alemán, A. M. (2021). Students of color, mental health, and racialized aggressions on social media. *Journal of Student Affairs Research and Practice*, 58(2), 179-195.
<https://doi.org/10.1080/19496591.2020.1853555>
- Means, D. R., & Pyne, K. B. (2017). Finding my way: Perceptions of institutional support and belonging in low-income, first-generation, first-year college students. *Journal of College Student Development*, 58(6), 907-924. doi:10.1353/csd.2017.0071.
- Meyer, I. H. (1995). Minority stress and mental health in gay men. *Journal of Health and Social Behavior*, 36, 38–56. <https://doi.org/10.2307/2137286>
- Meyer, I. H. (2013). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychology of Sexual Orientation and Gender Diversity*, 1(S), 3–26. <https://doi.org/10.1037/2329-0382.1.S.3>
- Miller, A. N., & Orsillo, S. M. (2020). Values, acceptance, and belongingness in graduate school: Perspectives from minoritized minority students. *Journal of Contextual Behavioral Science*, 15, 197-206. <https://doi.org/10.1016/j.jcbs.2020.01.002>

- Mirowsky, J., & Ross, C. E. (1989). *Social causes of psychological distress*. Hawthorne, NY: Aldine De Gruyter. <https://doi.org/10.4324/9781315129464>
- Moore III, J. L., Madison-Colmore, O., & Smith, D. M. (2003). The prove-them-wrong syndrome: Voices from unheard African-American males in engineering disciplines. *The Journal of Men's Studies*, 12(1), 61-73. <https://doi.org/10.3149/jms.1201.61>
- Museus, S. D., Nichols, A. H., & Lambert, A. D. (2008). Racial differences in the effects of campus racial climate on degree completion: A structural equation model. *The Review of Higher Education*, 32(1), 107-134. doi:10.1353/rhe.0.0030.
- Museus, S. D., Maramba, . C. (2011). The impact of culture on Filipino American students' sense of belonging. *The Review of Higher Education*, 34, 231–258. doi:10.1353/rhe.2010.0022.
- Museus, S. D., Yi, V., & Saelua, N. (2017). The impact of culturally engaging campus environments on sense of belonging. *The Review of Higher Education*, 40(2), 187-215. doi:10.1353/rhe.2017.0001.
- Nagda, B. A., Gurin, P., Sorensen, N., & Zúñiga, X. (2009). Evaluating intergroup dialogue: Engaging diversity for personal and social responsibility. *Diversity & Democracy*, 12(1), 4-6.
- Nagda, B. A., Yeakley, A., Gurin, P., & Sorensen, N. (2012). Intergroup dialogue: A critical-dialogic model for conflict engagement. *The Oxford Handbook of Intergroup Conflict*, 210-228. 10.1093/oxfordhb/9780199747672.013.0013
- Nezlek, J. B., Wesselmann, E. D., Wheeler, L., & Williams, K. D. (2012). Ostracism in everyday life. *Group Dynamics: Theory, Research, and Practice*, 16(2), 91–104. <https://doi.org/10.1037/a0028029>

- Nora, A., & Cabrera, A. F. (1996). The role of perceptions of prejudice and discrimination on the adjustment of minority students to college. *The Journal of Higher Education*, 67(2), 119-148. <https://doi.org/10.1080/00221546.1996.11780253>
- Nora, A. (2004). The role of habitus and cultural capital in choosing a college, transitioning from high school to higher education, and persisting in college among minority and nonminority students. *Journal of Hispanic Higher Education*, 3(2), 180-208. <https://doi.org/10.1177/1538192704263189>
- Pachankis, J. E., Sullivan, T. J., Feinstein, B. A., & Newcomb, M. E. (2018). Young adult gay and bisexual men's stigma experiences and mental health: An 8-year longitudinal study. *Developmental Psychology*, 54(7), 1381-1393. <https://doi.org/10.1037/dev0000518>
- Park, J. J., Kim, Y. K., Salazar, C., & Hayes, S. (2020). Student–faculty interaction and discrimination from faculty in STEM: The link with retention. *Research in Higher Education*, 61, 1-27. <https://doi.org/10.1007/s11162-019-09564-w>
- Pearlin, L. I. (1999). The stress process revisited: Reflections on concepts and their interrelationships. *Handbook of the Sociology of Mental Health* (pp. 395–415). New York: Kluwer Academic/Plenum. DOI: 10.1007/0-387-36223-1_19
- Peña-Talamantes, A. E. (2017). *Examining hometown environments and university experiences: A qualitative study of gay Latino college students' identity challenges at two predominantly White institutions* [Doctoral dissertation, The Florida State University]. ProQuest Dissertation Publishing.
- Pichardo, C. M., Molina, K. M., Rosas, C. E., Uriostegui, M., & Sanchez-Johnsen, L. (2021). Racial discrimination and depressive symptoms among Latina/o college students: The

- role of racism-related vigilance and sleep. *Race and Social Problems*, 13(2), 86-101.
<https://doi.org/10.1007/s12552-020-09304-1>
- Pittman, D. M., Cho Kim, S., Hunter, C. D., & Obasi, E. M. (2017). The role of minority stress in second-generation Black emerging adult college students' high-risk drinking behaviors. *Cultural Diversity and Ethnic Minority Psychology*, 23(3), 445.
<https://doi.org/10.1037/cdp0000135>
- Rainey, K., Dancy, M., Mickelson, R., Stearns, E., & Moller, S. (2018). Race and gender differences in how sense of belonging influences decisions to major in STEM. *International Journal of STEM Education*, 5(1), 1-14. <https://doi.org/10.1186/s40594-018-0115-6>
- Rankin, S. R., Weber, G., Blumenfeld, W., & Frazer, S. (2010). *2010 state of greater education for lesbian, gay, bisexual and transgender people*. Charlotte, NC: Campus Pride.
- Raymond, J. M., & Sheppard, K. (2017). Effects of peer mentoring on nursing students' perceived stress, sense of belonging, self-efficacy and loneliness. *Journal of Nursing Education and Practice*, 8(1), 16-23. doi:10.5430/jnep.v8n1p16
- Reason, R. D., Terenzini, P. T., & Domingo, R. J. (2007). Developing social and personal competence in the first year of college. *The Review of Higher Education*, 30(3), 271-299. doi:10.1353/rhe.2007.0012.
- Roberts, S. N. (2018). Psychological and suicidal distress among lesbian, gay, and bisexual college students: Stressors and strengths. [Doctoral dissertation, The Florida State University]. Florida State University.
- Robertson, R. V., Mitra, A., Van Delinder, J., & Mason, D. (2012). A qualitative examination of what Black males say about their experiences at a predominantly White college. *Ain't*

- nobody worryin': Maleness and masculinity in Black America*, 145-158. Cognella Academic Publishing.
- Rodgers, K. A., & Summers, J. J. (2008). African American students at predominantly White institutions: A motivational and self-systems approach to understanding retention. *Educational Psychology Review*, 20(2), 171-190. <https://doi.org/10.1007/s10648-008-9072-9>
- Rodríguez, J., Nagda, B. R. A., Sorensen, N., & Gurin, P. (2018). Engaging race and racism for socially just intergroup relations: The impact of intergroup dialogue on college campuses in the United States. *Multicultural Education Review*, 10(3), 224-245. <https://doi.org/10.1080/2005615X.2018.1497874>
- Sanchez, D., & Awad, G. H. (2016). 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*, 9(1), 31-43. <https://doi.org/10.1080/17542863.2015.1081955>
- Schlossberg, N. K. (1989). Marginality and mattering: Key issues in building community. *New Directions for Student Services*, 48(1), 5-15. <https://doi.org/10.1002/ss.37119894803>
- Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Differences*, 54(3), 402-407. <https://doi.org/10.1016/j.paid.2012.10.009>
- Sheldon, K. M., Cheng, C., Hilpert, J. (2011). Understanding well-being and optimal functioning: Applying the multilevel personality in context (MPIC) model. *Psychological Inquiry*, 22, 1–16. <https://doi.org/10.1080/1047840X.2011.532477>

- Sheldon, K. M. (2012). The self-determination theory perspective on positive mental health across cultures. *World Psychiatry, 11*, 101–102. doi:10.1016/j.wpsyc.2012.05.017
- Simmons, S. (2020). First-generation Black males' challenges in attending a PWI: Understanding what makes them persist. [Master's Thesis, Purdue University].
<https://thekeep.eiu.edu/theses/4777>
- Sims, G. M., Kia-Keating, M., Liu, S. R., & Taghavi, I. (2020). Political climate and sense of belonging in higher education: Latina undergraduates and mental health. *Peace and Conflict: Journal of Peace Psychology, 26*(4), 356-364.
<https://doi.org/10.1037/pac0000448>
- Smardz, J., Martynowicz, H., Wojakowska, A., Michalek-Zrabkowska, M., Mazur, G., & Wieckiewicz, M. (2019). Correlation between sleep bruxism, stress, and depression—a polysomnographic study. *Journal of Clinical Medicine, 8*(9), 1344-1354.
<https://doi.org/10.3390/jcm8091344>
- Stebbleton, M. J., Soria, K. M., & Huesman Jr, R. L. (2014). First-generation students' sense of belonging, mental health, and use of counseling services at public research universities. *Journal of College Counseling, 17*(1), 6-20. <https://doi.org/10.1002/j.2161-1882.2014.00044.x>
- Stewart, S., Lim, D. H., & Kim, J. (2015). Factors influencing college persistence for first-time students. *Journal of Developmental Education, 38*(3), 12-20.
<https://www.jstor.org/stable/24614019>
- Strayhorn, T. (2008). Sentido de pertenencia: A hierarchical analysis predicting sense of belonging among Latino college students. *Journal of Hispanic Higher Education, 7*(4), 301-320. <https://doi.org/10.1177/1538192708320474>

- Strayhorn, T. L. (2012). Exploring the impact of Facebook and Myspace use on first-year students' sense of belonging and persistence decisions. *Journal of College Student Development, 53*, 783- 796. doi:10.1353/csd.2012.0078.
- Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students*. Routledge. <https://doi.org/10.4324/9780203118924>
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist, 62*(4), 271.
- Tan, K. K., Treharne, G. J., Ellis, S. J., Schmidt, J. M., & Veale, J. F. (2019). Gender minority stress: A critical review. *67*(10), 1471-1489, *Journal of Homosexuality*.
<https://doi.org/10.1080/00918369.2019.1591789>
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. University of Chicago Press.
- Tinto, V. (2005, January). Taking student success seriously: Rethinking the first year of college. *Ninth Annual Intersession Academic Affairs Forum, California State University, Fullerton, 19*(2), 5-9.
- Tovar, E., Simon, M. A. (2010). Factorial structure and invariance analysis of the sense of belonging scales. *Measurement and Evaluation in Counseling and Development, 43*, 199–217. <https://doi.org/10.1177/0748175610384811>
- Uliaszek, A. A., Zinbarg, R. E., Mineka, S., Craske, M. G., Sutton, J. M., Griffith, J. W., ... & Hammen, C. (2010). The role of neuroticism and extraversion in the stress–anxiety and stress–depression relationships. *Anxiety, Stress, & Coping, 23*(4), 363-381.
<https://doi.org/10.1080/10615800903377264>

- Whisman, M. A., Judd, C. M., Whiteford, N. T., & Gelhorn, H. L. (2013). Measurement invariance of the Beck Depression Inventory–Second Edition (BDI-II) across gender, race, and ethnicity in college students. *Assessment, 20*(4), 419-428.
<https://doi.org/10.1177/1073191112460273>
- Whisman, M. A., & Richardson, E. D. (2015). Normative data on the Beck Depression Inventory–second edition (BDI-II) in college students. *Journal of Clinical Psychology, 71*(9), 898-907. <https://doi.org/10.1002/jclp.22188>
- Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology, 2*(3), 335-351. <https://doi.org/10.1177/135910539700200305>
- Woodford, M. R., Han, Y., Craig, S., Lim, C., & Matney, M. M. (2014). Discrimination and mental health among sexual minority college students: The type and form of discrimination does matter. *Journal of Gay & Lesbian Mental Health, 18*(2), 142-163.
<https://doi.org/10.1080/19359705.2013.833882>
- Xie, H. Y., & Xiao, H. (2018, June). Analysis on the relationship between school belonging and learning burnout of university students. *2nd International Conference on Management, Education and Social Science* (pp. 1-7). <https://doi.org/10.2991/icmess-18.2018.101>
- Zúñiga, X., B. A. Nagda, M. Chesler, and A. Cytron-Walker. 2007. Intergroup dialogues in higher education: Meaningful learning about social justice. *ASHE Higher Education Report Series 32*(4), 1-128. San Francisco: Jossey-Bass.
<https://doi.org/10.1002/aehe.3204>

Figure 1.

Hypothesized associations between discrimination, sense of belonging, depressive symptoms, and experienced stress.

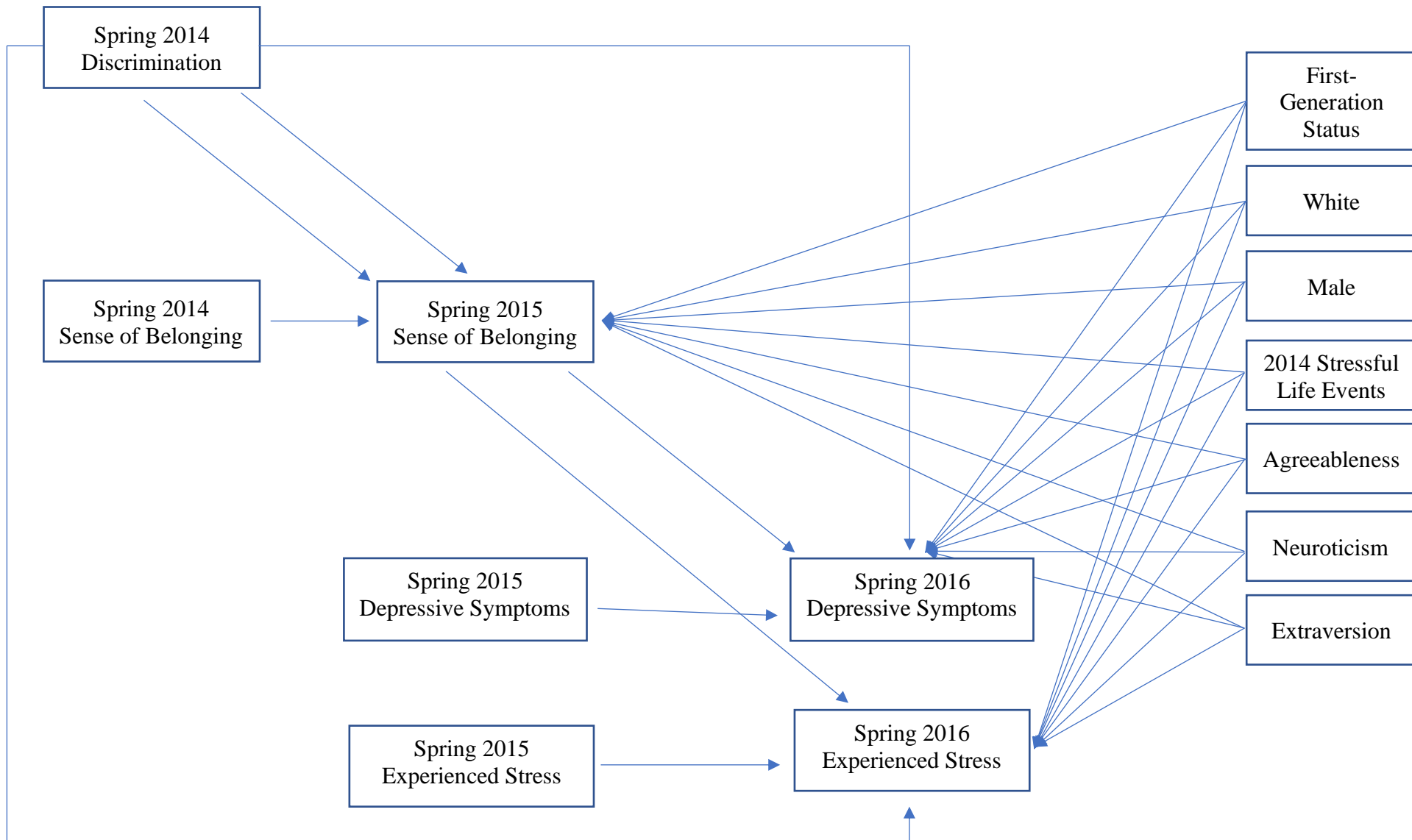


Table 1.*Descriptive statistics for primary study variables*

Variable	Mean	SD	Range	α
Spring 2014 discrimination	1.69	0.64	1.00-4.00	0.91
Spring 2014 sense of belonging	3.85	0.67	1.44-5.00	0.92
Spring 2015 sense of belonging	3.69	0.66	2.00-5.00	0.92
Spring 2015 depressive symptoms	10.81	9.23	0.00-41.00	0.92
Spring 2016 depressive symptoms	10.37	9.31	0.00-52.00	0.92
Spring 2015 experienced stress	2.85	0.56	1.43-4.50	0.89
Spring 2016 experienced stress	2.82	0.57	1.21-4.36	0.88
Agreeableness	3.85	0.63	1.44-5.00	0.81
Neuroticism	2.87	0.80	1.00-4.75	0.84
Extraversion	3.24	0.88	1.12-5.00	0.89
Spring 2014 stressful life events	0.54	0.98	0.00-7.00	-

Table 2.*Correlations among primary study variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Discrimination Spr '14	-													
2. Sense of belonging Spr '14	-0.45*	-												
3. Sense of belonging Spr '15	-0.44*	0.75*	-											
4. Depressive symptoms Spr '15	0.24*	-0.42*	-0.49*	-										
5. Depressive symptoms Spr' 16	0.32*	-0.51*	-0.50*	0.64*	-									
6. Experienced stress Spr '15	0.19*	-0.45*	-0.49*	0.71*	0.44*	-								
7. Experienced stress Spr '16	0.32*	-0.49*	-0.52*	0.57*	0.73*	0.61*	-							
8. Agreeableness	-0.15*	0.31*	0.32*	-0.15*	-0.24*	-0.19*	-0.26*	-						
9. Neuroticism	0.23*	-0.36*	-0.33*	0.45*	0.38*	0.49*	0.44*	-0.32*	-					
10. Extraversion	-0.06	0.33*	0.29*	-0.25*	-0.23*	-0.24*	-0.19*	0.25*	-0.39*	-				
11. Male	0.09	-0.02	0.00	-0.16*	-0.09	-0.13*	-0.06	-0.13*	-0.20*	-0.07	-			
12. White	-0.04	0.14*	0.19*	-0.04	-0.04	-0.07	-0.08	0.09	0.01	0.02	0.00	-		
13. First-Generation	-0.04	0.04	0.09	-0.15*	-0.11*	-0.07	-0.07	0.08	-0.02	0.02	0.04	0.25*	-	
14. Stressful life events Spr '14	0.21*	-0.18*	-0.22*	0.11	0.13*	0.09	0.14*	-0.08	0.09	0.04	-0.09	0.01	0.03	-

* $p < .05$

Table 3.

Results of path model testing associations between spring 2014 discrimination, spring 2015 sense of belonging, spring 2016 depressive symptoms, and spring 2016 experienced stress.

Outcome variable	Predictor variables	<i>B</i>	<i>SE (B)</i>	β
Spring 2015 sense of belonging	Agreeableness	0.10*	0.04	0.09*
	Spring 2014 sense of belonging	0.09*	0.01	0.68*
	Spring 2014 discrimination	-0.19*	0.08	-0.10*
Spring 2016 depressive symptoms	Spring 2015 depressive symptoms	0.51*	0.05	0.50*
	Spring 2015 sense of belonging	-0.32*	0.07	-0.24*
	Spring 2014 discrimination	0.16	0.13	0.07
Spring 2016 experienced stress	Neuroticism	0.06*	0.03	0.09*
	Spring 2015 experienced stress	0.41*	0.05	0.41*
	Spring 2015 sense of belonging	-0.21*	0.05	-0.25*
	Spring 2014 discrimination	0.18*	0.08	0.11*

Note: * $p < .05$; Spring 2014 discrimination, Spring 2014 sense of belonging, Spring 2015 depressive symptoms, and Spring 2016 depressive symptoms were statistically transformed due to excessive skewness.