

Natural Mentoring Relationships and the Adjustment to College among Underrepresented Students

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Abstract This study investigated associations between natural mentoring relationships and academic performance via psychological distress among underrepresented college students attending an elite predominantly White institution (PWI). Specifically, this study explored whether the quantity of natural mentors possessed upon college entry, the retention of natural mentors across the first year of college, and overall changes in the number of natural mentors possessed during the first year of college predicted improvements in students' semester grade point averages (GPAs) via reductions in psychological distress. Participants in this study included 336 first-year undergraduate students attending a selective PWI. Students were eligible to participate in this study if they were first-generation college students, students from economically disadvantaged backgrounds, or students from underrepresented racial/ethnic minority groups. Results of this study indicated that a greater number of retained natural mentoring relationships across the first year of college were associated with improvements in students' GPAs via reductions in symptoms of depression from the Fall to Spring semester. The results of this study suggest that institutional efforts to support the maintenance of preexisting mentoring relationships may be an effective approach to promoting the academic success of underrepresented college students during the first year of college.

Keywords Underrepresented college students · Mentoring · Mental health · Academic performance

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First-generation college students, students from economically disadvantaged backgrounds, and students from historically underrepresented racial and ethnic minority groups tend to face a number of unique challenges when they enter college (Schreiner, Noel & Cantwell, 2011). These challenges stem from reduced access to financial, human, and social capital prior to college entry (Massey, Charles, Lundy & Fisher, 2003) and experiences of marginalization and discrimination on college campuses (Fries-Britt & Turner, 2001; Torres, 2003), all of which make their academic and social integration into the university more difficult. Notably, these challenges are above and beyond those faced by majority students and are of particular relevance at elite predominantly White institutions (PWIs) where underrepresented students' minority status may be more salient (Massey et al., 2003). Further, there is theoretical and empirical reason to believe that these added challenges and related difficulties with academic and social integration contribute to academic failure among underrepresented students in comparison to their majority peers (Braxton & Hirschy, 2005; Tinto, 1987). This disparity is manifested in college retention statistics. Specifically, first-generation college students graduate at one third the rate of students whose parents have college degrees; 29% of students from economically disadvantaged backgrounds graduate in comparison to 55% of middle-income students and 73% of high-income students; and graduation rates among Black and Latino students lag 16–25% points behind the graduation rates of Asian and White students (Chen, 2005; Schreiner et al., 2011).

Psychological Distress and Academic Performance

One factor that may play a key role in academic underachievement among underrepresented college students is

psychological distress. Although there is a high prevalence of mental health problems among all college students (Hunt & Eisenberg, 2010; Zivin, Eisenberg, Golberstein & Gollust, 2009), underrepresented college students may be at even greater risk for experiencing psychological distress due to additional stressors they tend to experience, especially as they transition through their first year of college (Eisenberg, Gollust, Golberstein & Hefner, 2007; Hurd, Varner, Caldwell & Zimmerman, 2014; Neville, Heppner, Ji & Thye, 2004; Smedley, Myers & Harrell, 1993). Notably, psychological distress, particularly depression and anxiety, appears to be a primary predictor of academic underachievement among college students (American College Health Association, 2013; Breslau, Lane, Sampson & Kessler, 2008; Deroma, Leach, & Leverett, 2009; Eisenberg, Golberstein & Hunt, 2009; Hysenbegasi, Hass & Rowland, 2005; Kessler, Foster, Saunders & Stang, 1995), suggesting that bolstering the mental health of underrepresented students may be an effective strategy to promoting the academic success of this group of students and closing achievement gaps in higher education.

Symptoms of depression and anxiety may influence students' academic performance in several ways. In addition to directly detracting from cognitive abilities (Beck, 1976), depressive and anxiety symptoms also may affect key noncognitive skills, such as motivation and persistence, that impact students' ability to learn and perform in academic contexts (Brackney & Karabenick, 1995; Cunha & Heckman, 2006). Specific symptoms of depression such as anhedonia (lack of interest in previously pleasurable activities), reduced or excessive sleep, reduced energy, feelings of hopelessness, and impaired concentration are likely to both reduce the amount of time allocated to academic activities and detract from the productivity of time spent on academic work (DeRoma et al., 2009; Jaycox et al., 2009). Similarly, symptoms of generalized anxiety, such as excessive worrying, feeling out of control, nervousness, and an inability to relax, can all contribute to impaired concentration and diminished productivity on academic tasks (Owens, Stevenson, Hadwin, & Norgate, 2012). Moreover, physical symptoms of anxiety associated with panic attacks, such as trembling, dizziness, heart palpitations, and difficulty breathing, can be triggered by academic activities such as attending class or studying. These symptoms are often experienced as scary and overwhelming, and students may avoid academic activities in an attempt to prevent the onset of panic symptoms. Notably, the effects of mental health problems on students' academic performance may be most pronounced during the college years as compulsory education laws require attendance and participation during primary and secondary education (Eisenberg et al., 2009). College students have

much more freedom in deciding whether to attend class and how to allocate their time outside of class. This may be of particular import during the first year of college as students are managing the transition and at greatest risk of dropping out (Horn, 1998; Tinto, 2010).

Natural Mentoring Relationships

Although underrepresented college students may be particularly vulnerable to psychological distress and subsequent poor academic performance, they also may demonstrate the greatest psychological and academic benefits from key supportive relationships (Erickson, McDonald & Elder, 2009). Relationships with supportive nonparental adults may become increasingly salient as youth transition from high school to college and become increasingly independent (Aquilino, 1997; Hurd, Stoddard, Bauermeister & Zimmerman, 2014). Adults who are older and more experienced can provide underrepresented college students with an array of support, companionship, and advice without threatening these emerging adults' sense of autonomy (Beam, Chen & Greenberger, 2002; Zimmerman, Bingenheimer & Behrendt, 2005). Given that the college years are an ideal time for identity development, worldview exploration, and planning for the future (Arnett, 2000), supportive nonparental adults also may be highly sought out for guidance. These adults also may play a key role in helping underrepresented students cope with the unique and additive stressors they experience as they transition to college (particularly, when the college is an elite PWI).

Natural mentor is the term used to describe nonparental adults who serve a mentoring role to youth in their everyday lives (Rhodes, Ebert & Fischer, 1992). In contrast to mentoring relationships that develop through formal programs, natural mentoring relationships develop organically through a process of mutual selection. Thus, natural mentors are adults from youths' preexisting social networks to whom youth can go for support and guidance (Zimmerman et al., 2005). Natural mentors can be nonparental adults from youths' families (e.g., aunts, uncles, and grandparents), schools (e.g., teachers, coaches, and guidance counselors), or broader communities (e.g., neighbors, religious leaders, and employers). Unlike formal mentors, natural mentors tend to share demographic characteristics and backgrounds with their mentees (Hurd, Sánchez, Zimmerman & Caldwell, 2012; Hurd & Sellers, 2013; Hurd, Varner & Rowley, 2013; Kogan, Brody & Chen, 2011; Sánchez, Reyes & Singh, 2006). These similarities may enhance natural mentors' abilities to provide emotional support to underrepresented college students. Given that underrepresented students' natural mentors are likely to have personal experiences with adversity and marginalization, they may be better able to provide sympathy and advice regarding how to

cope with discrimination and other marginalizing experiences. Findings from previous research indicate that students from historically underrepresented racial and ethnic groups and students from lower socioeconomic backgrounds demonstrate the greatest academic benefits from having a natural mentoring relationship (Erickson et al., 2009). These relationships may provide access to social and informational capital that otherwise would be unavailable to underrepresented college students. Although an analysis of underrepresented students' natural mentoring relationships during their college years has not been conducted, some research that has investigated the long-term benefits of natural mentoring suggests that these relationships contribute to increased educational attainment over time (Fruith & Wray-Lake, 2013; Hurd et al., 2012). Moreover, natural mentoring relationships may help some youth to obtain more intrinsically rewarding careers (McDonald & Lambert, 2014) and accrue greater lifetime earnings (Timpe & Lunkenheimer, 2015).

Beyond direct influences on underrepresented college students' academic performance, natural mentoring relationships also may indirectly promote students' academic success by bolstering their mental health (Hurd & Zimmerman, 2014). Previous studies have found support for the possibility that natural mentors reduce the negative effects of stressful experiences on psychological distress among their mentees (Hurd & Zimmerman, 2010a,b), suggesting that these relationships may foster psychological resilience in the face of adversity. Specifically, natural mentors may serve as additional social resources that can aid with coping responses to stressful experiences (Carbonell, Reinherz & Beardslee, 2005). Moreover, natural mentors may bolster underrepresented students' sense of self-worth, thus making them less vulnerable to the noxious effects of stressful experiences on their mental health (Rhodes, 2005). In addition, natural mentors may connect their mentees with other key resources such as academic supports or mental health counseling and, in this way, contribute to their mental health and academic success. Of note, natural mentoring relationships may be most critical during key transitional spaces wherein adjustment-related stressors may be greatest and the potential for negative outcomes may be the highest (Hurd & Zimmerman, 2010a; Hurd, Stoddard, et al., 2014; Klaw, Rhodes & Fitzgerald, 2003). For example, the first year of college is when students are most at risk of dropping out (Horn, 1998; Tinto, 2010) and consequently may benefit the most from natural mentoring ties.

Current Study

Although numerous studies have been conducted to elucidate factors that contribute to academic failure among

underrepresented students, comparatively fewer investigations have been undertaken to illuminate factors that may promote collegiate success among these students. This study aims to respond to this research gap by investigating whether natural mentoring relationships may facilitate improved academic outcomes directly and indirectly via decreases in symptoms of depression and anxiety during the transition to college. Beyond merely assessing the presence of a natural mentoring relationship, this study seeks to contribute to this area of study by more fully capturing total natural mentoring support from multiple sources and examining potential changes in the presence of these relationships during the first year of college. Thus, we assessed the total number of natural mentors underrepresented college students possessed during the Fall semester of their first year of college.

Consistent with research findings on social networks and mental health (Heaney & Israel, 2008) and previous empirical findings from natural mentoring research (DuBois & Silverthorn, 2005; Greenberger, Chen & Beam, 1998; Hurd & Zimmerman, 2010a,b; Hurd, Stoddard, et al., 2014; Kogan & Brody, 2010), we hypothesized that having more natural mentoring relationships upon college entry would be associated with better psychological and academic adjustment. We anticipated that more natural mentors would afford more supportive resources to students and thus would facilitate improved psychological and academic adjustment through the Spring semester of their first year. We also examined underrepresented college students' natural mentoring relationships during the Spring semester of their first year as we were interested in exploring whether changes in natural mentoring relationships from the Fall to Spring semesters may predict variation in their psychological and academic adjustment. Similar to our first hypothesis, we hypothesized that students who maintained the same number of natural mentors or who demonstrated overall increases in the number of natural mentors they possessed from the Fall to Spring semester would demonstrate better psychological and academic adjustment relative to their counterparts who lacked natural mentoring relationships across both semesters or their counterparts who demonstrated overall decreases in the number of natural mentors they possessed from the Fall to Spring semester.

Finally, we collected descriptive data about each of the natural mentors identified in the Fall and Spring semesters so that we were able to determine how many natural mentors from the Fall semester were retained in the Spring semester. This allowed us to examine whether natural mentor retention across the first year of college influenced change in psychological and academic functioning among our sample of underrepresented college students. The findings of previous research indicate that the retention of

natural mentoring relationships during challenging transitional periods may be a key determinant of the effectiveness of these relationships in promoting academic success (Klaw et al., 2003). Accordingly, we hypothesized that the total number of natural mentors retained from the Fall to Spring semester would predict better academic performance directly and indirectly via reductions in psychological distress.

To better isolate the associations between our indicators of natural mentoring relationships and our outcomes of interest, we included a number of relevant variables in our statistical analyses including gender (male vs. female and other), race/ethnicity (non-Hispanic White vs. racial/ethnic minority), family income, age, standardized test scores (SAT or ACT), and extraversion. This approach allowed us to account for characteristics of the individual who may be associated with both possessing natural mentoring relationships and displaying better psychological and academic outcomes. Given our interest in assessing adjustment over the first year of college, we included students' depressive symptoms, anxiety symptoms, and grade point averages (GPAs) from the Fall semester in our models predicting these outcomes in the Spring semester.

Method

Participants and Procedure

Participants in this study included 336 first-year undergraduate students attending a selective, public PWI in the southeastern United States. Students were eligible to participate in the study if they indicated on their college application that they were first-generation college students or members of the following underrepresented racial/ethnic groups: Hispanic/Latino, Black/African-American, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander. In addition, incoming first-year students who qualified for the full amount of the federal Pell grant were eligible. All first-year college students who met these eligibility requirements (selection criteria were not mutually exclusive) were recruited to participate in this study via e-mail. We achieved a 44% response rate of all eligible students and 97% retention in the study across the Fall to Spring semesters. All but two students consented to allow information from their applications for admission and student records to be paired with their survey data. Participants came into the lab and completed surveys on iPads about their social, emotional, and academic functioning. Participants over age 18 provided informed consent and those under 18 provided assent, and consent was obtained from their parents or guardians. Participants took about an hour, on average, to complete the surveys and

were compensated with a \$20 Visa gift card in the Fall 2013 semester and a \$25 Visa gift card in the Spring 2014 semester.

Our initial sample in the Fall included 340 participants; however, four participants were no longer enrolled at the university in the Spring semester, and given that GPA was our primary outcomes of interest, we removed these four participants from our analyses. Of the 336 participants, 69% were female. The mean age of participants was 18.11 years old ($SD = .37$ years). Slightly less than half (44.7%) of the sample identified as first-generation college students. Annual family income of participants ranged from below \$4999 to \$105,000 and above. The sample included participants from the following racial/ethnic groups: Black/African-American (29%), White (23%), Hispanic/Latino (10%), Multiracial (20%), Asian (17%), and American Indian/Alaskan Native (<1%).

Measures

Table 1 includes descriptive statistics for study variables.

Natural Mentoring Relationships

During both the Fall and Spring semesters, participants were asked, "Other than a parent or person who raised you, is there an adult who is older and more experienced than you who you go to for support and guidance? This could be an adult you knew before coming to college or an adult you have met since being at college. Do not include friends or romantic partners." If participants responded in the affirmative, they were then asked, "How many adults like this do you have?" Response options ranged from 1 (1) to 6 or more (6). Subsequently, participants were asked a series of questions about each mentor identified (up to a total of 5). Specifically, participants were asked to provide the first name of the adult, how they knew the adult, whether they knew the adult informally or through a formal mentoring program (notably, of all mentors identified only two mentors were formal/assigned mentors and due to the study's focus on natural mentoring, these two mentors were not included in this study's analyses), and demographic characteristics of the

Table 1 Descriptive statistics for key study variables

	Range	Mean	<i>SD</i>	α
Depressive Symptoms Fall	0–60	10.94	8.61	.91
Depressive Symptoms Spring	0–60	10.52	9.11	.92
Anxiety Symptoms Fall	0–63	11.2	9.54	.91
Anxiety Symptoms Spring	0–63	10.54	9.77	.92
GPA Fall	0–4	3.13	.51	–
GPA Spring	0–4	3.15	.52	–

GPA, grade point average.

adult (i.e., gender, race/ethnicity). For this study, the total number of natural mentors possessed in the Fall semester was used to test the first study hypothesis, the total number of natural mentors possessed in the Fall and Spring semesters were used to create groups based on overall change in quantity of natural mentors to test the second study hypothesis, and the descriptive data about each of the natural mentors were used to create a new variable reflecting the total number of natural mentors retained from the Fall to Spring semester which was used to test the third study hypothesis.

Depressive Symptoms

The Beck Depression Inventory II (BDI II; Beck, Steer & Brown, 1996) was used to assess depressive symptoms in the Fall and Spring semesters. For the purposes of this study, the suicidality item was omitted, resulting in a 20-item measure with response options ranging from 0 to 3. A sample item measuring depressive symptoms included rating feelings of sadness over the past 2 weeks, with response choices including 0 (I do not feel sad), 1 (I feel sad much of the time), 2 (I am sad all the time), or 3 (I am so sad or unhappy that I can't stand it). This measure had excellent reliability in the current sample (Fall semester $\alpha = .91$; Spring semester $\alpha = .92$). Responses to these items were summed to create a composite variable for depressive symptoms. According to the BDI II scoring manual, scores of 14 through 19 are indicative of mild depression, whereas scores of 20 or greater are indicative of moderate depression.

Anxiety Symptoms

The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) was used to assess symptoms of anxiety in the Fall and Spring semesters. Participants were asked to indicate how much they had been bothered by various symptoms of anxiety such as nervousness, inability to relax, fear of the worst happening, and heart pounding/racing over the past month. Response choices ranged from 0 (not at all) to 3 (severely—it bothered me a lot). This measure displayed a high level of internal consistency in the Fall ($\alpha = .91$) and Spring ($\alpha = .92$) semesters. Responses were summed to create a composite anxiety symptoms variable. According to the BAI scoring manual, scores of 10 through 16 are indicative of mild anxiety, whereas scores of 17 or greater are indicative of moderate anxiety.

Grade Point Average

With participants' written consent, academic records were accessed at the conclusion of the Fall and Spring

semesters to obtain students' GPAs (calculated on a four-point scale) for that term.

Extraversion

Extraversion was assessed during the Fall semester using the extraversion subscale of the Big Five Inventory (BFI; John & Srivastava, 1999). The subscale includes eight items. Participants were asked to indicate the extent to which they agreed with statements describing themselves as extraverted (e.g., talkative, full of energy, assertive, and outgoing/sociable). Response choices ranged from 1 (disagree strongly) to 5 (agree strongly). An average was calculated based on these eight items ($\alpha = 0.89$) and that composite variable was used in this study's analyses.

Standardized Test Scores

Students' incoming SAT/ACT scores were obtained from their academic records. ACT scores were converted to a 2400 scale to be consistent with SAT scores.

Demographic Variables

Demographic data collected from participants during the Fall semester included their gender, race/ethnicity, total household income over the past year, and age. We created a dichotomous variable to represent gender, with 0 referring to "female and other" and 1 referring to "male." Similarly, we transformed data on race/ethnicity into a dichotomous variable where racial and ethnic minorities were coded as 0 and Whites were coded as 1. Total household income was assessed through the question, "What is your best estimate of the total income from all persons and sources in the household in 2012?" Response choices ranged from 1 (Below \$4999) to 11 (\$95,000–\$104,999), with intermediate responses of monetary ranges of \$9999 in each range in between 1 and 11. Participants also were asked to indicate their age in years.

Data Analysis

To test two of our study hypotheses, we conducted structural equation modeling with measured variables (i.e., path analysis) using Mplus 7 software (Muthén & Muthén, 2012). Full information maximum likelihood (FIML) methods were used to handle missing data under the missing at random (MAR) assumption. Models were tested using maximum likelihood with robust standard errors to account for nonnormality of some study variables. We first tested whether total number of natural mentors in the Fall directly and indirectly predicted Spring GPA via

symptoms of psychological distress (i.e., depression and anxiety) during the Spring semester. Our model was designed to assess change in our intervening and outcome variables across the first year of college as a function of total number of natural mentoring relationships in the Fall. Thus, we included participants' Fall GPA and symptoms of depression and anxiety reported in the middle of the Fall semester in the model: each was included as a predictor of its corresponding variable assessed during the Spring semester. Gender, race/ethnicity, total household income, and age were included as predictors of all intervening and outcome variables. Extraversion also was included as a predictor of all intervening and outcome variables, and students' SAT/ACT scores were included as a predictor of Spring GPA. We correlated all exogenous variables with each other and correlated the error terms associated with depressive and anxiety symptoms with each other. Subsequently, we substituted total number of retained natural mentors from the Fall to Spring for total number of natural mentors in the Fall and conducted an identical version of the previously described analysis. For both of these models, we assessed model fit with the chi-square statistic, comparative fit index (CFI), the Tucker Lewis Index (TLI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). We generated bootstrapped confidence intervals of the indirect effects. We determined a significant indirect effect if the 95% confidence interval of the standardized specific indirect effect did not include 0.

To test whether changes in the total number of natural mentors possessed from the Fall to Spring were associated with students' mental health and GPA, we first created groups based on fluctuations in numbers of mentors across the time points. The groups included participants who (a) did not have a mentor at either time point, (b) decreased in the number of mentors they had, (c) increased in the number of mentors they had, or (d) kept the same number of mentors. We then conducted mixed between-within analysis of covariance (including gender, race/ethnicity, SAT/ACT, and extraversion as covariates) to examine whether there were group differences in changes in psychological distress or GPA from the Fall to Spring semester.

Results

Natural Mentoring Relationships

Approximately two thirds ($n = 224$) of participants reported possessing at least one natural mentor in the Fall, and this percentage slightly increased during the Spring term ($n = 238$). Figure 1 displays the quantity of natural mentors reported by participants during the Fall and

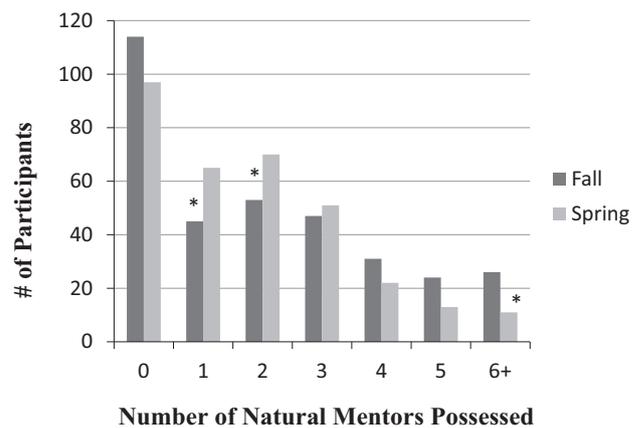


Fig. 1 Frequency of participants reporting total number of natural mentors possessed during the Fall and Spring semesters of their first year of college. *Significant difference in proportion of responses from the Fall to the Spring semester

Spring terms. There was a slight decrease in the average total number of natural mentors possessed across the two time points (Fall mean = 2.04, $SD = 1.96$; Spring mean = 1.75, $SD = 1.62$; $t = 2.09$, $p < .05$). Figure 2 shows the roles of natural mentors in participants' lives across the two study time points; specifically, the quantity of natural mentors falling into each role is displayed based on all natural mentors reported by participants during the Fall ($n = 624$) and Spring ($n = 523$) semesters (each participant could report on up to five natural mentors). On average, participants reported a smaller proportion of natural mentors who were former high school teachers or coaches from the Fall to Spring semester (33% of natural mentors in the Fall; 21% of natural mentors in the Spring; $z = 2.089$, $p < .05$), but participants reported a greater proportion of natural mentors who they knew from professional encounters (e.g., employers, religious leaders; 9% of natural mentors in the Fall; 12% of natural mentors in

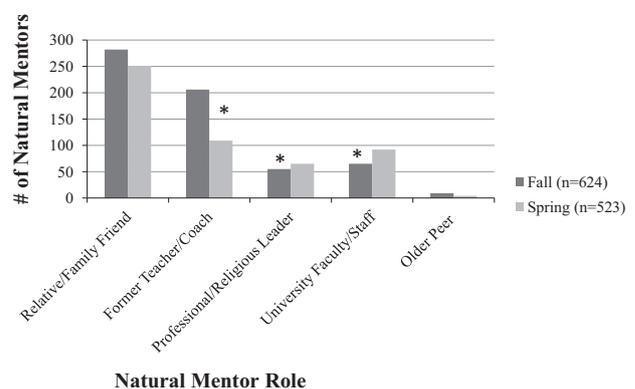


Fig. 2 Frequency of natural mentors in various roles as reported by participants during the Fall and Spring semesters of their first year of college. *Significant difference in proportion of responses from the Fall to the Spring semester

the Spring; $z = -2.0$, $p < .05$) and from their new academic institution (i.e., university faculty and staff; 10% of natural mentors in the Fall; 18% of natural mentors in the Spring; $z = -3.52$, $p < .05$).

Regarding retention of natural mentors across the first year of college, 112 participants did not have a natural mentor in the Fall, 79 participants had natural mentors in the Fall but did not retain any of them in the Spring (although they may have developed new natural mentors in the Spring), 71 participants retained one natural mentor, 52 participants retained two natural mentors, 18 participants retained three natural mentors, and four participants retained four natural mentors. In terms of overall changes in total number of natural mentors possessed from the Fall to Spring semester (regardless of whether natural mentors were the same or different people across the two time points), 76 participants did not possess a natural mentor at either time point, 120 participants reported a decrease in the total number of natural mentors they had from the Fall to the Spring semester, 81 participants reported an increase in the total number of natural mentors they had from the Fall to the Spring semester, and 59 participants had at least one natural mentor in the Fall and retained the exact same number of natural mentors in the Spring.

Correlations

Correlations among study variables are presented in Table 2. Although not all correlations achieved statistical significance, they were all in the expected directions. Thus, we proceeded to conduct our path analyses to test two of our study hypotheses.

Path Analyses

Our first model tested whether the total number of natural mentors possessed during the Fall semester of participants'

first year of college predicted improvements in GPA from Fall to Spring directly and indirectly via reductions in depressive and anxiety symptoms. The path model demonstrated acceptable fit to the data [$\chi^2(df = 10, N = 336) = 20.3$, $p = .03$; CFI = .98, TLI = .94, RMSEA = .05 (90% CI for RMSEA = .02, .09), SRMR = .02]. Although our model achieved adequate fit to the data, our primary study hypotheses were not supported. Specifically, the total number of natural mentors possessed in the Fall semester was not associated with depressive symptoms ($B = -.05$; *ns*), anxiety symptoms ($B = -.06$; *ns*), or GPA ($B = .02$; *ns*) in the Spring semester. Depressive symptoms in the Fall semester predicted depressive symptoms in the Spring semester ($B = .71$; $p < .05$), and anxiety symptoms in the Fall semester predicted anxiety symptoms in the Spring semester ($B = .57$; $p < .05$). Being male was associated with lower anxiety symptoms during the Spring semester ($B = -.08$; $p < .05$). Fall GPA predicted Spring GPA ($B = .58$; $p < .05$). Standardized test scores ($B = .57$; $p = .05$) and Spring semester depressive symptoms ($B = -.14$; $p < .05$) also predicted Spring GPA. The correlated error variance between anxiety and depressive symptoms was statistically significant ($r = .36$; $p < .05$).

Our second model was identical to our first model; however, we replaced the total number of natural mentors possessed in the Fall semester with the total number of natural mentors retained from the Fall to the Spring semester. This model also achieved acceptable fit to the data [$\chi^2(df = 10, N = 336) = 19.11$, $p = .04$; CFI = .99, TLI = .95, RMSEA = .05 (90% CI for RMSEA = .01, .09), SRMR = .02]. Moreover, our study hypotheses were partially supported. Figure 3 shows all significant pathways. As can be seen in the figure, we found that the total number of retained natural mentors predicted reductions in depressive and anxiety symptoms from the Fall to Spring semester. In addition, Spring semester depressive symptoms were associated with Spring GPA. Although the total

Table 2 Correlations among study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. # NMs Fall	–												
2. # NMs retained Fall–Spring	.61*	–											
3. Depressive symptom in Fall	-.09	-.13*	–										
4. Depressive symptom in Spring	-.12*	-.17*	.74*	–									
5. Anxiety symptom in Fall	.05	.04	.57*	.41*	–								
6. Anxiety symptom Spring	-.02	-.08	.41*	.50*	.59*	–							
7. GPA Fall	.04	.01	-.13*	-.21*	-.02	-.06	–						
8. GPA Spring	.03	.06	-.16*	-.24*	-.01	-.06	.64*	–					
9. Family income	-.04	-.02	.03	-.06	.04	.04	.01	–					
10. Age	-.01	-.04	-.02	-.02	.02	-.03	.04	.05	–				
11. Standardized test scores	-.17*	-.16*	-.05	-.08	-.07	-.11*	.36*	.30*	.04	–			
12. Extraversion	.23*	.17*	-.30*	-.28*	-.13*	-.12*	-.06	.01	.05	.02	–		
13. White	.05	.16*	-.05	-.05	.07	.01	.10	.12*	-.04	-.01	.12*	–	
14. Male	-.17*	-.16*	-.15*	-.09	-.17*	-.17*	-.04	-.06	-.03	.02	.12*	-.07	–

NMs, natural mentors, GPA, grade point average., * $p < .05$

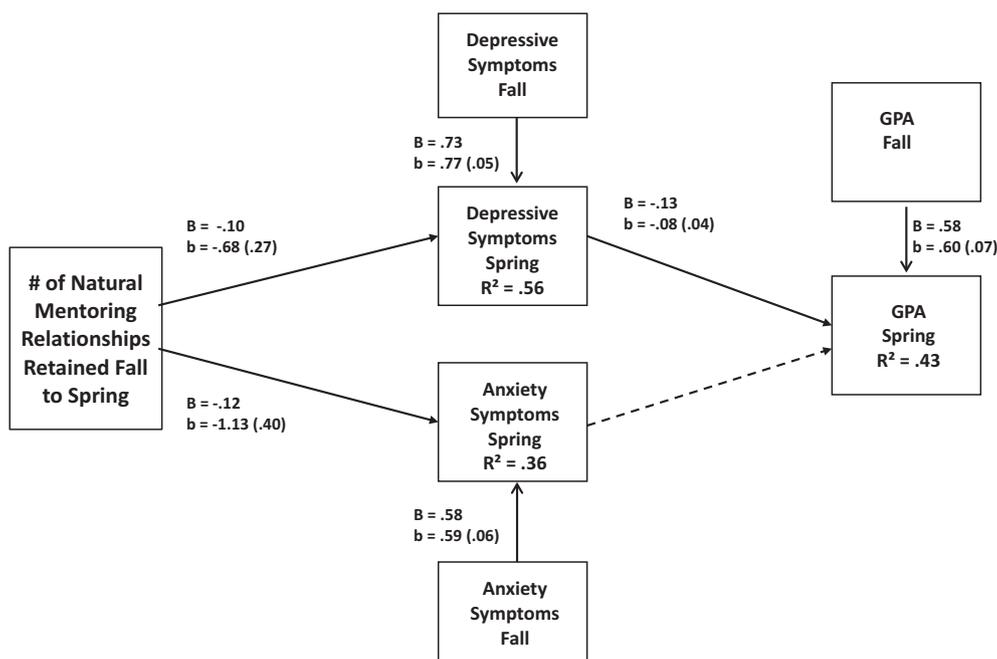


Fig. 3 Associations between number of retained natural mentoring relationships, symptoms of depression and anxiety, and semester grade point average (GPA). Model is adjusted for participants' race, gender, family income, age, extraversion, and standardized test scores

number of retained natural mentors was not directly related to Spring GPA, the total number of retained natural mentors was indirectly related to higher Spring GPA via reductions in depressive symptoms (standardized indirect effect = .01; 90% CI for standardized indirect effect = .001, .02).

Group Comparisons

Our final analyses explored whether changes in total number of natural mentors possessed from the Fall to Spring semester were associated with changes in mental health or GPA from the Fall to Spring semester. The groups included participants who (a) did not have a mentor at either time point, (b) decreased in the number of mentors they had, (c) increased in the number of mentors they had, or (d) kept the same number of mentors. Results of our mixed between-within analysis of covariance (including gender, race/ethnicity, standardized test scores, and extraversion as covariates) did not reveal significant differences by group membership (i.e., main effects) for changes in depressive symptoms [$F(3, 327) = 2.39$, $p = .07$; partial $\eta^2 = .02$], anxiety symptoms [$F(3, 327) = .77$, $p = .77$; partial $\eta^2 = .01$], or GPA [$F(3, 327) = 1.09$, $p = .35$; partial $\eta^2 = .01$] from the Fall to Spring semester.

Discussion

Results of this study indicate that the retention of natural mentors across the transition to college may play an

important role in promoting academic success among underrepresented students attending a PWI. Specifically, we found that retaining a greater number of natural mentors from the Fall to Spring semester of the first year of college contributed to reductions in both depressive and anxiety symptoms. Reductions in depressive symptoms, in turn, were associated with improvements in students' semester GPAs. Notably, our other study hypotheses were not supported. A greater number of natural mentors upon entry to the university and overall changes in the total number of natural mentors possessed across the two semesters were not associated with changes in students' psychological distress or GPAs.

The combination of these findings suggests three things. First, taken together, these findings suggest that there is a unique and meaningful contribution of natural mentor retention on student outcomes that is distinct from merely starting off with more natural mentors or gaining natural mentors during the transition to college. This finding is consistent with previous research showing that natural mentor retention during key transitional periods may contribute to marginalized youths' academic success. Klaw et al. (2003), for example, found that adolescent mothers who retained natural mentors across 2 years postpartum were more likely to have remained enrolled in or graduated from high school than their counterparts who did not possess natural mentoring relationships. In their study, participants who possessed a natural mentoring relationship that terminated during the 2 years following the birth of the child were not any less likely to drop out of high school than their counterparts

who never possessed a natural mentor. The authors discuss these findings in the context of the 2 years postpartum being the most challenging for adolescent mothers; thus, the retention of natural mentors during this critical period appeared to be central to adolescent mothers' ability to successfully adjust.

Similarly, the results of this study seem to underscore the import of natural mentor retention during a critical transitional period among underrepresented college students. The highest college drop-out rates are during the first year of college (Horn, 1998; Tinto, 2010), suggesting that the transition is a particularly difficult one, especially for underrepresented students who drop out at higher rates than their majority peers (Chen, 2005; Schreiner et al., 2011). Retaining supportive relationships with key adults during this critical period appears to confer mental health benefits that ultimately promote academic achievement. Moreover, our results suggest additive benefits pertaining to the quantity of these relationships such that students who retain a greater number of natural mentors appear to reap greater benefits.

Second, this combination of findings points more strongly to effects that result from natural mentoring relationships as opposed to individual factors that may predict both the possession of natural mentoring relationships and more positive mental health and academic outcomes. Given that we did not find associations between the total number of natural mentors students possessed in the Fall semester of their first year of college and changes in their mental health or academic outcomes, it seems that merely starting college with more natural mentoring relationships or having characteristics that facilitate the formation of natural mentoring relationships are not sufficient to promote improved mental health or academic adjustment across the first year of college. Moreover, we accounted for numerous individual factors in our analyses including student demographics, standardized test scores, and extraversion as a means to further isolate the potential associations between natural mentoring relationships and our outcomes of interest. Thus, we feel more confident that our findings speak to unique contributions of natural mentor retention to underrepresented students' psychosocial adjustment to college. Nevertheless, it is possible that we failed to measure additional individual factors that may play a role in mentor retention as well as students' psychosocial adjustment. As natural mentoring relationships, by definition, develop organically, they do not lend themselves well to experimental manipulation that would permit researchers to infer causality. Thus, researchers must continue to investigate these relationships using all available means to assess potential effects of natural mentoring relationships on mentees' prospective outcomes.

Third, our nonsignificant findings pertaining to changes in overall number of natural mentors possessed across the

two time points seem to refute the possibility of reverse causality. Changes in total number of natural mentors possessed were not associated with changes in psychological distress during the first year of college. This implies that our findings related to natural mentor retention are not just an artifact of students who were experiencing an increase in depressive or anxiety symptoms being more likely to lose natural mentoring relationships. In fact, it is possible that some students who were experiencing more distress may have been more likely to seek out natural mentors for additional support. This may, in part, explain why we did not see psychological or academic improvements associated with overall increases in total number of natural mentors. Although students may ultimately benefit from the onset of these new natural mentoring relationships (particularly, if they developed in the context of students' support seeking to deal with psychological distress), previous research suggests that the benefits of mentoring relationships may unfold over time and that the close bonds that are needed to foster more positive youth outcomes may take a minimum of 1 year to develop (Grossman & Rhodes, 2002). Thus, although students may ultimately benefit from these novel natural mentoring relationships, we were not able to document these benefits due to the limited time frame covered in our study. This also may explain why we did not see psychological or academic advantages among students who retained the same total number of natural mentors but did so through replacement, as opposed to retaining the same natural mentors across the two study time points. Notably, we plan to continue to follow the participants in this study for a total of 4 years. Future studies will investigate potential long-term benefits associated with new natural mentoring relationships that develop during the transition to college.

Limitations and Directions for Future Research

Several study limitations should be noted. First, we should note that we are unsure how representative the current sample may be of other underrepresented students attending elite PWIs. Less than a handful of study participants dropped out during the first year of college, and their average GPA was fairly high during both the Fall and Spring semesters. Additional research is needed to determine whether the findings of this study can be replicated with other groups of underrepresented students attending elite PWIs across the nation. Second, although statistically significant, the total indirect effect found from the number of natural mentors retained to students' GPAs via depressive symptoms was very small. Nevertheless, given that we were examining changes in mental health and academic performance across a very short period of time and given that the sample means on these variables did not

change across the two time points, the fact that any statistically significant findings emerged under these circumstances may further strengthen the meaningfulness of our findings. Future research that examines these associations across the college years will provide additional information about the nature of these associations over more extended periods of time. Moreover, this research will shed light on the potential benefits associated with the onset of new natural mentoring relationships during the early years of college and further explore potential associations between symptoms of anxiety and academic performance. In this study, we did not find associations between anxiety symptoms and GPA. Previous research also has failed to document associations between anxiety and academic performance during the early college years (Andrews & Wilding, 2004). It may be that initially, higher levels of anxiety (e.g., fear of failure) motivate better academic performance among some students, but these benefits wear off over time as the psychological toll of excessive anxiety ultimately detracts from students' ability to succeed in the classroom (Cunha & Heckman, 2006). Finally, although this study was innovative in its attention to frequency and duration of natural mentoring relationships, this study did not investigate additional characteristics of natural mentoring relationships (e.g., relational closeness, types of support provided) that may provide additional insight into the factors that promote effective natural mentoring relationships. Future studies are needed to more fully investigate the role of natural mentoring relationship characteristics in moderating the associations found in this study.

Implications and Conclusions

Overall, the results of this study indicate that retaining natural mentoring relationships across the first year of college may foster academic gains by reducing symptoms of depression among underrepresented students attending PWIs. Notably, the category of natural mentoring relationships that demonstrated the greatest decline from the Fall to Spring semester was the category that included former high school teachers, coaches, and extracurricular activity leaders (e.g., choir directors). Not surprisingly, these relationships may be less likely to persevere in the absence of regular contact and may be more difficult to maintain as both mentors and students become more occupied with activities and responsibilities across the academic year. Yet, the findings of this study seem to suggest that the maintenance of these relationships through the Spring semester of the first year of college facilitates a more positive transition to college among underrepresented students.

One reason for the potential import of high school faculty and staff natural mentors in supporting the transition

to college among underrepresented students is that these adults tend to play a very prominent role in getting underrepresented students to college (Erickson et al., 2009; Levine & Nidiffer, 1996). Beyond just providing the informational and instrumental support needed to make college accessible to underrepresented students, these adults also may play a central role in supporting students as they navigate the emotional and psychological challenges pertaining to college entry, which can be tremendous among students experiencing oppression (Massey et al., 2003). Although these high school faculty and staff may feel that their job has been completed once their mentees depart for college, the results of this study suggest that supportive relationships with high school mentors may continue to be of import as underrepresented students traverse their first year of college. Thus, 4-year colleges and universities may want to consider opportunities to support and nurture students' preexisting mentoring relationships upon college entry, particularly among underrepresented students attending PWIs. Institutional efforts may include things such as organized weekend visits aimed at bringing natural mentors to campus to engage in activities with their mentees (similar to parent weekends hosted by many universities). To date, 4-year colleges and universities have focused more heavily on cultivating new mentoring relationships as a retention strategy for underrepresented students (Crisp & Cruz, 2009). The results of this study suggest that institutional efforts to support the maintenance of preexisting mentoring relationships may be an effective approach to promoting the academic success of underrepresented college students, particularly during the first year of college.

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Conflict of Interest

The authors declare that they have no conflicts of interest.

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