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BRIEF REPORT

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Examining social support and belonging as mental health protective factors for undergraduates with adverse childhood experiences

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ABSTRACT

Objective: In this study, we examine social support and sense of belonging as protective factors against depression and anxiety among undergraduates with adverse childhood experiences (ACEs), a growing population at heightened risk for mental health problems.

Participants: Our sample of 170 undergraduates (ages 18–25) attending a large public university in the southwestern US was comprised of predominantly female-identified (69%), South Asian (45%), junior and senior (78%), full time (97%) students.

Methods: Students self-reported ACEs, perceived social support, sense of school belonging, and depression and anxiety symptoms in fall 2022.

Results: Controlling for age, higher ACEs and lower social support and belonging predicted more severe depression and anxiety. Higher ACEs only significantly predicted higher depression severity when support and belonging were low. Interactions predicting anxiety were nonsignificant.

Conclusions: Findings highlight social support and belonging as potential intervention targets for reducing mental health risk among students with ACEs or other traumatic experiences.

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Adverse childhood experiences; anxiety; belonging; depression; social support

Introduction

Mental health concerns among US college students have grown in prevalence[1] and severity[2] over the last decade, trends that were exacerbated by the COVID-19 pandemic.[3] Exposure to adverse childhood experiences (ACEs)—such as experiencing neglect or verbal, physical, or sexual abuse by a parent or other adult, witnessing abuse of a parent, parental separation or divorce, or living with someone with substance use problems, mental illness, or who was imprisoned—increases vulnerability to mental and physical health problems during the college years[4] and lowers the likelihood of degree completion.[5] Thus, it is paramount to identify mental health protective factors among college students exposed to ACEs.

Social support—which includes perceptions that one is valued by others and part of a network of mutual assistance, care, and positive regard[6]—is important for college adjustment due to myriad social challenges associated with moving away from familiar sources of support from family and high school friends and navigating new social environments and peer groups.[7] Evidence suggests that obtaining social support can be especially difficult for individuals exposed to ACEs due to trauma-induced emotion dysregulation, which undermines attachment security,[8] leading to difficulties forming and maintaining high-quality interpersonal relationships in adulthood.[9] Several studies have found lower perceived social support among college students exposed to ACEs compared to their peers with no ACE exposure.[4,10] Despite these challenges, individuals with higher risk for mental health problems due to ACEs may also derive the most benefit from social support. Some evidence suggests that associations of ACEs with higher depression risk in adulthood are only significant at moderate or low levels of social support, and that at high levels of support, ACE exposure is not associated with higher depression risk.[11]

Sense of school belonging—the extent to which students feel accepted, respected, and included in their school community—has also been associated with positive mental health in college.[12] In a recent study examining associations of a variety of psychosocial factors with undergraduates' psychological distress, social connectedness was among the most robust predictors of lower distress.[13] Feelings of belonging appear to protect against depressive symptoms resulting from stressful events during college (e.g., the COVID-19 pandemic[14]). Although few studies have examined whether associations between ACEs and poor mental health among college students are buffered by school belonging specifically, several have evaluated mediating and moderating roles of related constructs. One study found that social connectedness attenuated associations of ACEs with anxiety, stress,

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and depression,[15] and another found an indirect effect of ACEs on suicidal ideation through thwarted belongingness—a similar (inverse) construct.[16]

In sum, increasing prevalence and severity of mental health concerns among college students have led higher education administrators and stakeholders to focus on identifying social-contextual factors with the potential to promote campus-level well-being.[17] This is particularly important in light of growing numbers of students arriving on campus with ACE histories.[18] Although social support and school belongingness have garnered recent interest among higher education researchers,[19] few studies have evaluated these factors as potential buffers of associations between ACEs and negative mental health outcomes among college students specifically. In the current study, we address this gap in the literature by examining social support and school belonging as moderators of associations between ACEs and depression and anxiety in an undergraduate sample.

Method

Participants

Participants were 170 students from a large metropolitan university in the Southwest US. Students were 18–25 years old ($M = 20.44$) and predominantly female-identifying (69%). Students were recruited through the university's research exposure credit website, where students sign up for required research credits for School of Behavioral and Brain Sciences core classes. Most participants were South Asian (45%) or White (29%), and 15% reported Hispanic ethnicity. The majority were juniors and seniors (78%) and full-time students (97%).

Procedure

The study was conducted during the summer and early fall of 2022. Following informed web consent, participants completed anonymous surveys *via* REDCap. As a data quality control measure, participants were excluded from analyses if they failed the attention check questions embedded in questionnaires. Procedures were approved by the University of Texas at Dallas institutional review board (22-564).

Measures

ACEs

Participants completed the ACEs questionnaire,[20] a 10-item measure assessing stressful or traumatic events experienced before age 18. Students read each event, including a parent or other adult in the household going to prison, being physically abused, suffering from mental illness, getting separated or divorced, having a substance abuse problem, or neglecting or abusing the participant. They reported the total number out of 10 that they experienced. Because students did not report yes/no for each event, we were unable to calculate reliability for this sample. However, the measure has demonstrated reliability in undergraduates ($\alpha = .75$)[18] and validity *via* positive associations with social, emotional, and behavioral dysregulation ($b = .50$) among adolescents.[21]

Depression

We used the 20-item Center for Epidemiologic Studies Depression Scale (CES-D)[22] to measure depression symptoms. Students reported symptom frequency over the past week using a 4-point scale (1 = *Rarely or none of the time [less than one day]*, 4 = *Most or all of the time [5–7 days]*). Higher sum scores (20 items, range = 0–60) indicate more severe depression. The CES-D was reliable in our sample ($\alpha = .78$) and has demonstrated reliability ($\alpha = .93$) and validity *via* positive correlations with structured diagnostic interview scores ($r = .88$) among adolescents.[23]

Anxiety

Students reported anxiety symptom severity over the past month using the Beck Anxiety Inventory (BAI),[24] a 21-item measure describing physiological and emotional anxiety symptoms. Students indicated how much each symptom bothered them in the last month on a 4-point scale (0 = *Not at all*, 3 = *Severely*). Higher sum scores (21 items, range = 0–63) indicate more severe anxiety. The BAI is reliable in our sample ($\alpha = .92$) and has demonstrated reliability ($\alpha = .90$) and validity *via* positive correlations with State-Trait Anxiety Inventory scales ($rs = .56–.68$) in nonclinical undergraduate samples.[25]

Social support

The Medical Outcomes Study (MOS) Social Support Survey[26] assesses four types of social support: emotional/informational support, affectionate support, positive social interaction, and tangible support. Students reported how often each type of support is available to them using a 5-point scale (1 = *None of the time*, 5 = *All of the time*). Higher sum scores (19 items, range = 19–95) indicate greater social support. The measure was reliable in our sample ($\alpha = .82$) and has demonstrated reliability ($\alpha = .94$) and construct validity in undergraduates *via* correlations with a well-being subscale[27] describing positive social relationships ($r = .32$).[28]

Sense of school belonging

The Psychological Sense of School Membership Scale[29] is an 18-item questionnaire assessing sense of school belonging (ie feeling accepted, respected, and valued within the school community). Participants rated items describing feelings of belonging using a 5-point scale (1 = *Not true at all*, 5 = *Completely true*). Higher sum scores (18 items, range = 25–83) indicated greater feelings of belonging. The measure was reliable in our sample ($\alpha = .77$) and has demonstrated reliability ($\alpha s = .87–.89$)[30] and validity *via* positive correlations with friendship quality ($r = .62$) and social acceptance ($r = .32$) in undergraduates.[31]

Analysis plan

Preliminary analyses included missing value analyses, investigating variable descriptives, frequencies, and distributions, and evaluating demographic variables as potential controls by examining their associations with ACEs (variable descriptives and correlations included in Supplemental Material). We ran four linear regressions in IBM SPSS v.29 with ACEs predicting either depression or anxiety, moderated by either social support or school belonging. ACEs, social support, and belonging were mean centered prior to creating interaction terms. We probed significant interactions using simple slopes tests at one standard deviation above and below the mean.[32]

Results

We ran analyses with complete data considering only .35% of item-level values were missing and missingness occurred completely at random, Little's MCAR $\chi^2(7) = 5.38$, $p = .613$. Of potential covariates (age, gender, race, first-generation), only age was significantly correlated with ACEs (older students reported more ACEs, $r = .20$, $p = .012$). Thus, we controlled for age in all regressions. ACEs ranged from 0 to 8 ($M = 2.20$, $SD = 2.17$). Although the most common ACE score was 0 (27% of the sample), 24% of students reported four or more ACEs. Over one third of students (37%) reported clinically significant depressive symptoms (CES-$D \geq 16$). Moderate to severe anxiety (BAI ≥ 16) was less prevalent (15%); most students reported minimal (BAI 0–7; 60%) or mild anxiety (BAI 8–15; 25%).

In regressions examining social support as a moderator, higher ACEs and lower support predicted more severe depression (βs = .25, −0.32; ps ≤ .001) and anxiety (βs = .21, −0.18; ps = .018, .030), and there was a significant interaction between ACEs and social support predicting depressive symptoms ($\beta = -0.17$, $p = .018$). In regressions examining sense of belonging, higher ACEs and lower belonging predicted more severe depression (βs = .34, −0.39, ps < .001) and anxiety ($\beta = .26$, −0.22; ps = .002, .005), and there was a marginally significant interaction between ACEs and belonging predicting depressive symptoms ($\beta = -0.13$, $p = .055$). Simple slopes, shown in Figure 1, revealed that higher ACEs were only significantly related to depression severity when students had lower perceived social support, $b = 4.63$, $p < .001$, and lower sense of belonging, $b = 5.15$, $p < .001$. Simple slopes at high social support and belonging were nonsignificant (ps ≥ .150), as were interactions predicting anxiety (ps ≥ .496).

Discussion

The college years are characterized by myriad transitions and stressors that heighten risk for the emergence of mental health problems, particularly for students exposed to ACEs. Fortunately, this period also represents an ideal time for impactful interventions due to the foundational nature of emerging adulthood for lifelong mental health trajectories and recent emphasis on college campus-level well-being promotion efforts. Although our findings echo previous evidence for the negative impact of ACEs on psychological adjustment,[4] we also found these associations were only present among students with low social support and low sense of school belonging.

The prevalence of clinically significant depression in our sample (37%) was similar to national estimates of depression diagnoses among college students (41%); prevalence of moderate-to-severe anxiety in our sample (15%) was substantially lower than national estimates of anxiety disorder diagnoses (36%).[33] According to main effects, ACEs were associated with more severe anxiety and depression and social support and sense of belonging were negatively associated with anxiety and depression, consistent with previous findings.[34–37] According to interactions, social support and belonging only moderated associations between ACEs and depression; interactions predicting anxiety were nonsignificant. The restricted range of anxiety could have contributed to nonsignificant interactions due to lower prevalence of severe anxiety in our sample versus college population estimates. Social connections represented by the social support and belonging moderators may also offer less protection against anxiety, which often manifests as social anxiety among college students.[38]

Limitations

This study has several limitations. Although participants were told surveys were anonymous, it is possible that responses were biased by participants' discomfort with sensitive

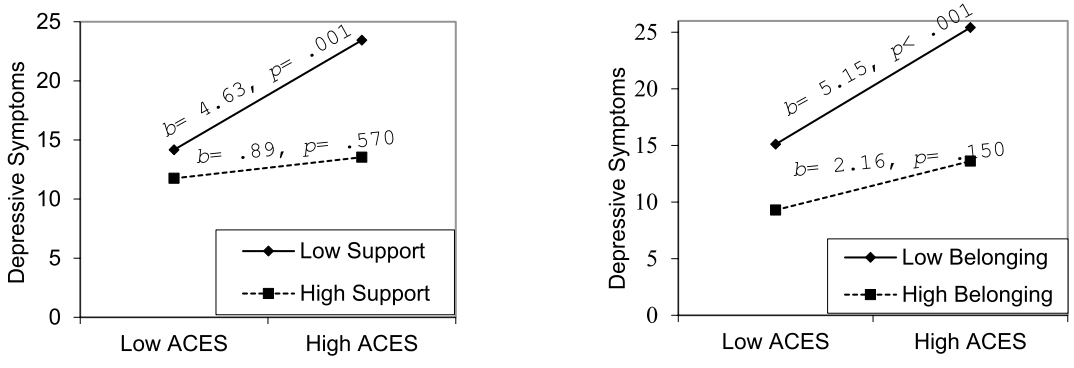


Figure 1. Interactions of adverse childhood experiences (ACEs) with social support (left) and sense of belonging (right) predicting depressive symptoms.

questions or the desire to endorse socially desirable answers (i.e., responses reflecting less familial dysfunction). Another limitation involved the restricted range of anxiety in our sample, which may explain the lack of anxiety-buffering effects for social support and belonging. Our sample was also primarily female-identified juniors and seniors. Future research should examine potential gender differences and unique mental health challenges faced in the transition to college.

Conclusions and implications

Estimates suggest that at least half of incoming college students were exposed to one or more ACE,[18] increasing their risk for poor psychological adjustment in college and beyond.[4,11] However, most studies examining mental health protective factors for individuals exposed to ACEs involve adolescents or adults, and few have examined sense of school belonging as a protective factor despite its rise to prominence in higher education research.[19] Although our findings highlight social support and sense of belonging as potential intervention targets for attenuating negative mental health impacts of ACEs, college students with ACE histories are more likely to quit interventions prematurely compared to their peers.[39] Very brief interventions (e.g., a one-hour, single-session writing activity) may circumvent disengagement challenges and have demonstrated effectiveness at promoting stable feelings of belonging among first-year students.[40] Additionally, because students with ACE histories seek help for mental health issues and access health information from university sources at higher rates than their peers, interventions would benefit from proactive delivery *via* trusted institutional channels and established programs.[39] Further research is needed to inform ways to initiate and sustain engagement with programs designed to promote belonging and connection in this population, particularly for students with historically marginalized identities.[19,41]

Disclosure statement

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States of America and received approval from the Institutional Review Board of the University of Texas at Dallas.

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Data availability statement

The dataset used for this study is not publicly available and must be requested by contacting the corresponding author.

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