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# Impact of Stress on Later Academic Engagement Among Emergent Bilingual Students: Grit and Academic Support as Protective Factors

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**ABSTRACT**

Despite evidence that academic engagement is necessary for academic success, limited research exists on the effects of stress on academic engagement for emergent bilingual students. The contribution of this short-term longitudinal study is the identification of individual and environmental socioemotional protective factors which may mitigate the impact of stress on later academic engagement among upper elementary emergent bilingual students at a Title I school ($N = 142$; 75% Latinx; 54% female). The present study tested teacher (TR) - and student-reported (SR) grit in addition to student-reported academic support (SR-peer and teacher support) as moderators of the impact of SR-perceived stress on later SR- and TR-academic engagement. Results indicated SR-peer support and SR-grit were significant moderators of the negative impact of stress on later TR-emotional engagement and SR-emotional engagement, respectively, when controlling for earlier engagement. The discussion addresses how schools can support emergent bilinguals' stress and implement systems-level practices that may mitigate the effects of stress on academic engagement.

**IMPACT STATEMENT**

Stress can disrupt student engagement and learning in school. For low-income, emergent bilingual elementary-aged students in the present study, stress had a negative relation with later emotional engagement in school. The negative relation of stress with engagement was mitigated by the protective factor of peer academic support, especially at high levels of stress. Student grit only mitigated the negative effect of stress on engagement at low levels of stress. It may be worth considering the promotion of peer academic support to counteract the negative effects of stress on low-income, emergent bilingual students.

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Given the growing population of Emergent Bilinguals (EB; National Center for Education Statistics [NCES], 2022), identification of risk and protective factors contributing to EB academic outcomes is essential. EB is operationalized in the present study as "students learning English who speak a language other than English with at least one parent (or primary caregiver) at home" (Garcia, 2009). Indeed, there are now over five million EB students in the U.S. (10% of K–12 students), which is an increase by over one million since 2000; EB students have increased in diversity over time although the majority remain Latinx (NCES, 2022). EB students possess assets, through mastery of home language and English, that may prove advantageous in relation to cognitive and socio–emotional development (National Academies of Sciences et al., 2017). At the same time, previous research suggests that immigrant Latinx students are likely to face the risk factor of high stress (Isasi et al., 2016) which can have a negative impact on their academic functioning (Albeg & Castro-Olivo, 2014). Although many studies have examined the effects of specific types of stressors on EB (e.g., discrimination stress, acculturative stress), the present study is the first, to our knowledge, to examine the effects of perceived overall stress (i.e., "the degree to which situations in one's life are appraised as stressful") (Cohen et al., 1983, p. 385) on later emotional and behavioral academic engagement for elementary-aged EB. At this time, only one study has explicitly tested the moderating effects of social–emotional variables for EB (e.g., moderator: social support; outcome: academic wellbeing; DeGarmo & Martinez, 2006). In DeGarmo and Martinez's study (2006), social support, particularly the environmental factor of parent support, buffered the effects of ethnic discrimination on academic wellbeing for Latinx middle and high schoolers. The identification of both individual and environmental protective factors holds implications for school psychologists regarding how to best support EB academic functioning in the face of stress. Guided by resilience theory, this short-term longitudinal study will test the individual factor of grit and the environmental factors of teacher and peer academic

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support as protective, moderating factors mitigating the negative impact of perceived stress on later elementary-aged EB academic engagement.

## Theoretical Framework

In the transactional model of stress, Lazarus and Folkman (1984) posit that psychological stress is a transaction between an individual and their environment. The child is theorized to perceive stress when they recognize, through an appraisal process, that the demands from their environment exceed their individual resources (Krohne, 2001). Indeed, the transactional model acknowledges that an individual's perception of stress is determined by their own stress response. In the risk and resilience model, Masten (2004) examines how child, family, school, and community protective factors interact with risk factors in a child's life. Based on a developmental perspective, a major task of Masten's (2004) model is identifying protective factors, both individual (e.g., attitudes) and environmental (e.g., support), that buffer a child from the negative impact of risk. This resilience framework holds important implications for the educational success of culturally and linguistically diverse students given that the identification of protective factors can inform preventive initiatives for students facing an academic opportunity gap (Rivera & Waxman, 2011). Based on transactional stress and resilience frameworks, the present study proposes that perceived stress functions as a risk factor due to its negative effects on EB academic functioning, and the negative impact of perceived stress on academic engagement may be dependent on individual (e.g., grit) and environmental protective factors (e.g., teacher and peer academic support).

## Academic Engagement

Academic engagement is considered a multidimensional construct posited to be a two-component model that incorporates a behavioral (e.g., participation in class) and emotional component (e.g., interest in school) (Alrashidi et al., 2016). Behavioral engagement has been defined as "students' effort, attention, and persistence during the initiation and execution of learning activities," and emotional engagement has been defined as "states that are germane to students' emotional involvement during learning activities such as enthusiasm, interest, and enjoyment" (Skinner et al., 2008, p. 766). Academic engagement is an important academic outcome that is affected by intellectual, academic, and social influences (e.g., Raufelder et al., 2014). Academic engagement, in turn, predicts academic success across all grade levels and across a variety of achievement outcomes, including GPA and high school graduation (e.g., Wang & Eccles, 2013). Importantly, although few studies have examined EB academic engagement, some indicate lower levels of academic engagement for Latinx EB (Uekawa et al., 2007) in comparison to their White, monolingual counterparts. Furthermore, there is an ever-expanding gap in the academic achievement of low-income and high-income students (Michelmore & Dynarski, 2017). Therefore, it is important to study low-income, EB given the unique risks and strengths of EB students relevant to academic engagement and achievement.

## Stress

EB students experience higher levels of stress and mental health challenges than non-EB students (Isasi et al., 2016). For EB and immigrant students, they may face additional challenges with acculturative stressors (Albeg & Castro-Olivo, 2014). EB students may also experience language anxiety related to less frequent exposure to English outside of the school environment, and feelings of otherness (Hashemi, 2011). In addition to the aforementioned factors of acculturative stress, language anxiety, etc., low-income EB students may have reduced opportunities for academic success and engagement due to limited access to academic resources (Irvin, 2012) which has, in turn, been implicated as a significant systemic threat to academic achievement (Levy et al., 2016). Therefore, it is also important to study low-income EB given the unique individual and systemic risks and strengths experienced by EB students from low-income families, in the areas of stress and engagement.

Perceived stress is defined in the present study as "the degree to which situations in one's life are appraised as stressful" (Cohen et al., 1983, p. 385). It is a global measure of stress that evaluates the degree to which respondents feel stressed (e.g., upset, overwhelmed) and appraise their ability to cope with the stress, in contrast to stress measures which assess frequencies of stressful events. The benefits of using a perceived stress scale, in comparison to a measure of stressful life events, is that it (a) can provide further information on the appraisal processes that are involved in the interaction between the individual and their environment; (b) forgoes the assumption that a rater who endorses more stressful life events always experiences more stress; (c) includes feelings associated with being overwhelmed; and (d) can potentially capture the perception of a wider variety of stressors than a predetermined stressful life events checklist (Cohen et al., 1983).

## Protective Factors: Academic Support and Grit

It is imperative to identify strengths-based protective factors in the face of stress given that their promotion may

lead to greater academic engagement in diverse student populations, as examined in the present study. The rationale for testing these strengths-based protective factors (i.e., academic support and grit) is the emphasis on a strengths-based approach in the resilience framework (Masten, 2001, 2004, 2015). The present study also responds to the call for multilevel factors in resilience model testing (e.g., Masten, 2015; Perez et al., 2009) due to our selection of individual (i.e., grit) and environmental (i.e., academic support) potential protective factors. To our knowledge, there is no literature on strengths-based moderators which mitigate the impact of perceived stress on academic engagement in the K–12 student population. Furthermore, grit and academic support's association with academic outcomes (e.g., engagement) and relevance for EB (Albeg & Castro-Olivo, 2014; O'Neal, 2018; Plunkett et al., 2008) indicate their potential as protective factors.

### *Academic Support*

Studies on academic support, specifically teacher and peer support, demonstrate positive correlations with academic motivation and achievement (DeGarmo & Martinez, 2006; Ghaith, 2002). For our study, teacher academic support was operationalized as the "[b]elief that the teacher cares about how much one learns and wishes to help one learn" (Johnson et al., 1985, p. 407). We operationalized peer academic support as the "[b]elief that other students care about how much one learns and wish to help one learn" (Johnson et al., 1985, p. 407). One study of college students found that social support acted as a protective factor (i.e., moderator) of the relation between perceived stress and academic engagement (Thomas & Borrayo, 2016). Additionally, Lee and Bierman (2015) note that teacher support has positive implications for academic engagement in low-income students. Although social support is widely recognized as having an important role in the academic success of Latinx, immigrant, and low-income students (Lee & Bierman, 2015; Suárez-Orozco et al., 2009), fewer studies have examined academic support for EB children. Academic support from teachers and peers, reported by adolescent students of color, has been positively linked with a host of academic outcomes, including academic motivation, GPA, and math and English grades (e.g., Alfaro et al., 2006; Fuligni, 1997). Also, in a study of Latinx middle school students, academic support from teachers emerged as more important to students than teachers demonstrating a personal interest in them (Garza, 2009). Academic support by peers and teachers may potentially play a protective role for low-income EB elementary age children, as suggested by the existing literature with youth and college students.

### *Grit*

Grit is operationalized as "persistence and passion for long-term goals" (Duckworth & Quinn, 2009, p. 166), and grit predicts traditional academic outcomes for students (e.g., GPA, SAT, education level) (Duckworth et al., 2007; Duckworth & Quinn, 2009). A few studies suggest that grit is positively related to achievement for ethnically-diverse EB students (Eskreis-Winkler et al., 2014; O'Neal et al., 2019). In addition, grit has been found to be positively correlated with social–cognitive constructs related to achievement, such as self-regulated learning and engagement (Muenks et al., 2017). Grit was chosen for the present study because its two factors capture the maintenance of interest that is expected for academic engagement along with persistence in the face of challenges (e.g., stress). Despite promising research on the link between motivation and literacy achievement for elementary-aged EB students (e.g., Taboada et al., 2009), few have examined grit's role as a protective factor for EB students (e.g., Li & Zhu, 2022; Mosanya, 2021). In one cross-sectional study with international college students, grit moderated the relation between loneliness and academic stress (Mosanya, 2021). Grit has received some criticism when applied to at-risk, low-income, or minoritized students due to the mistaken assumption, by some, that the absence of grit is a personal or cultural deficit (Syed et al., 2018).

The contribution of the present study, in contrast, is that it takes a strengths-based approach by examining grit and support through a resilience lens in which individual (grit) and environmental factors (teacher and peer academic support) are strengths which are posited to buffer the effects of stress on EB student engagement. Indeed, this study's identification of resilience processes may hold implications for school psychologists' selection and development of socioemotional-focused preventive interventions, like systemic school consultation to promote EB student academic engagement.

## Hypotheses

1. Time 1 perceived stress will predict Time 2 academic engagement for EB students, controlling for Time 1 academic engagement.
2. Time 1 perceived grit, teacher academic support, and peer academic support will serve as protective factors buffering the negative effect of Time 1 stress on Time 2 academic engagement for EB students, controlling for Time 1 academic engagement.

## METHODS

The current study is a short-term longitudinal study using an upper elementary sample of EB students from a Title I, majority EB, elementary school in the Mid-Atlantic

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region. The present study was part of a larger three-time-point study with a 97.9% retention rate over time. The current study used two time points from the larger dataset—times 1 and 3, collected approximately four months apart. For the purposes of the present study, we labeled the two timepoints: Time 1 (T1) and Time 2 (T2). Parent consent and student assent were collected by researchers for all participants in the present study. Students were administered self-report measures that assessed perceived stress, grit, teacher academic support, peer academic support, and academic engagement. Teachers consented and were administered online questionnaires that included measures of TR-grit and emotional engagement.

## Participants

The sample included 142 students from Grade 3, 4, and 5 from a Title I elementary school serving primarily low-income, ethnic minority, dual language families. For additional sample demographics and primary languages spoken in the home, see Table 1. Only EB students were included in this sample; using student- and parent-report, students were coded as EB if they spoke a language other than English with at least one parent (or primary caregiver) in the home (Garcia, 2009; Park et al., 2018). Note that the label of EB was selected, rather than the label of English Language Learner (ELL), to identify this sample because (1) EB is defined as a student learning a language other than English in the home and learning English in school (which matches this sample well), (2) EB frames the student's potential in becoming bilingual as a strength, and (3) the label of EB has been argued to better promote a more equitable education approach for these students compared to ELL (Garcia, 2009).

**Table 1.** Sample Demographics

| | Total Sample | |
|---|---|---|
| Demographic Variables | *N* | % |
| Total | 142 | 100 |
| Child Gender | | |
| Male | 65 | 46 |
| Female | 77 | 54 |
| Age | | |
| 8 years | 24 | 17 |
| 9 years | 51 | 36 |
| 10 years | 42 | 30 |
| 11 years | 24 | 17 |
| 12 years | 1 | <1 |
| Grade Level | | |
| 3rd | 49 | 35 |
| 4th | 43 | 30 |
| 5th | 50 | 35 |
| Ethnicity | | |
| Asian/Pacific Islander | 12 | 9 |
| Black, non-Hispanic | 20 | 14 |
| Latina/o | 106 | 75 |
| White | 4 | 3 |
| Primary Home Language | | |
| Spanish | 89 | 63 |
| English | 27 | 19 |
| French | 4 | 3 |
| Creole | 4 | 3 |
| Other | 16 | 11 |

The original sample included 149 students, and seven students were removed for not meeting the EB criteria. The school district did not give us permission to ask about immigrant generation or immigration status, countries of origin, or family income level, but school-level statistics indicated that 94% of the students received free or reduced lunch. This sample includes third through fifth graders, and this sample's demographics (Table 1) were similar to the demographics of all of the students in the school (grades Pre-K–5; Table 2), in terms of gender and ethnicity. For instance, this sample was 14% Black and there were 14% Black in the school. And, there were 75% Latinx in this sample and 80% Hispanic in the school.

Note that the percent English as a Second Language at the school was 66%. Twenty-four percent of the school's third, fourth, and fifth grade students tested below proficiency on the state reading assessment; 40% were below proficiency on math. The school district reported that 100% of the school's teachers were "highly qualified."

Teachers from each of the grade levels included in the present study (Grades 3-5) completed questionnaires for participating students in all 12 third, fourth, and fifth grade classes. Four Grade 4 teachers, four Grade 5 teachers, and one third grade art teacher participated. The art teacher completed all third-grade questionnaires after the third-grade teachers chose not to participate in the study due to their demanding new district curricula. The art teacher felt that they knew the students well enough to validly complete the questionnaires. The participating teachers (1 male; 4 Black; 5 White) had, on average, 22 students per class. As detailed below, analyses adjusted for potential teacher cluster effects across all classes.

## Procedures

This study was approved by the University of Maryland Institutional Review Board (IRB) and the school district's IRB, and the authors report there are no competing interests to declare. Fifty-five percent of all third through fifth grade students in the school participated in the study. T1 student-report data was collected between January and February 2014, and T2 student-report data was collected between May and June 2014. T1 teacher-report data was collected between March and May 2014 while T2 teacher-report data was collected between May and June 2014. All questions were read aloud to each student in a one-on-one setting to ensure all students understood the questions. Students with limited English language skills ($n = 6$) had the questions read aloud in Spanish or French by Spanish or French-speaking researchers, respectively.

**Table 2.** School Demographics (Pre-K to Fifth Grade)

| | | Gender | | Racial / Ethnic Identity | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Female | Male | AM | AS | BL | HI | PC | WH | MU |
| All Students | | 49.3 | 50.7 | <5.0 | 5.7 | 13.5 | 80.1 | <5.0 | <5.0 | <5.0 |
| ESOL | 66.4 | 31.4 | 35.0 | <5.0 | <5.0 | 6.1 | 57.1 | <5.0 | <5.0 | <5.0 |
| FARMS | 94.3 | 46.4 | 47.9 | <5.0 | <5.0 | 11.5 | 77.6 | <5.0 | <5.0 | <5.0 |
| SPED | 6.7 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | 5.4 | <5.0 | <5.0 | <5.0 |

*Note*. ESOL = English as a Second Language; FARMS = Free or Reduced Meals; SPED = Special Education; Racial and ethnic composition abbreviations are American Indian or Alaskan Native (AM); Asian (AS); Black or African American (BL); Hispanic/Latino (HI); Native Hawaiian or Other Pacific Islander (PI); White (WH); Two or More (Multiple) Races (MU).

## Measures

### *Perceived Stress*

T1 perceived stress was assessed using a modified version of the 10-item Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988). We modified the PSS-10 to contain language that was accessible for children and referenced school-related contexts (see O'Neal, 2018). Using a 5-point rating scale (1 = *Never,* 5 = *Very often*), students were asked to rate the degree to which they view life situations as uncontrollable and overwhelming (e.g., "In the last month, how often have you felt nervous and 'stressed'?"). Total scores for the PSS-10 were calculated using the average of items within the scale. The PSS-10 has demonstrated adequate internal consistency among college students (Roberti et al., 2006). In the present study, the omega internal consistency was adequate at .66 and similar to that in the Roberti et al. study (2006), although the alpha was .64, just below the typical .65 alpha cutoff for judgment of internal consistency adequacy (DeVellis, 2003). Note that a CFA using this measure was conducted in a previous study with this sample and model fit was adequate (O'Neal, 2018). In a previous study with this sample, the predictive validity of the PSS-10 on later literacy achievement was adequate (O'Neal, 2018). See Table 3 for internal reliabilities and omegas of the present study's measures.

### *Grit*

T1 grit was assessed with a modified SR- and TR-grit version of the original 8-item Short Grit Scale (Grit-S; Duckworth & Quinn, 2009) which uses a 5-point rating scale (1 = *Never,* 5 = *Very often*). We modified the language for the grit items with the goal of making it more accessible and clear for EB children along with adapting it a bit for school settings (e.g., "I finish whatever I begin in school; O'Neal et al., 2019). The few previous studies that used the Grit-S have reported adequate internal consistency and predictive validity of literacy achievement with children, including children in this sample (O'Neal et al., 2016, 2019). In a previous study with this sample, it was found that either a one- or two-factor structure fit well for the adapted teacher- and self-reported versions of the grit scale which are used in the present study (O'Neal et al. 2019). In addition, grit has been found to predict grade point average with high school and college-aged youth (Eskreis-Winkler et al., 2014; Muenks et al., 2017). In the present study, SR-grit ($\omega$ = .74) and TR-grit ($\omega$ = .93) had adequate internal consistency.

### *Academic Support*

T1 academic support from teachers and peers was assessed with the Teacher and Peer Academic Support Scales. Using a 5-point rating scale (1 = *Not at all,* 5 = *Very much*), students were asked to rate their perception of how much learning support they received from their teacher and peers. The two scales include four items each (e.g., "My teacher likes to help me learn"). Both the teacher and peer academic support scales have demonstrated adequate internal consistency and validity among eighth grade students (Johnson et al., 1985). The internal reliability of peer academic support was adequate in the present study; however, the reliability of teacher academic support was somewhat below expected ($\omega$ = .62; DeVellis, 2003).

### *Academic Engagement*

T1 academic engagement was assessed using the SR-behavioral engagement and the SR- and TR-emotional engagement scales (Skinner et al., 2008). Students were asked to rate their perception of how often they feel emotionally or behaviorally engaged in their class, using five items ("When I'm in class, I participate in class discussions," and "When we work on something in class, I feel interested.") and a 5-point response set (1 = *Not at all,* 5 = *Very much*). In a previous study, both emotional and behavioral engagement demonstrated adequate internal consistency and validity in a sample of elementary and middle school-aged students (Skinner et al., 2008). In a previous study with this sample, emotional engagement was a significant predictor of literacy achievement (O'Neal, 2018). In the present study, SR-emotional engagement (T1 $\omega$ = .74; T2 $\omega$ = .79), TR-emotional engagement (T1 $\omega$ = 94; T2 $\omega$ = .94), and SR-behavioral engagement (T1 $\omega$ = .73; $\omega$ = .78) had adequate internal consistency.

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## Analytic Approach

Descriptive statistics, correlations, and reliability analyses were conducted using IBM SPSS Version 26. Confirmatory factor and structural path models were tested using M*plus* version 8.2 (Muthén & Muthén, 2019). We used factor scores as observed variables in all models, instead of latent variables, due to the limited sample size. Factor scores were used in place of average scale scores because factor scores require less power (Ng & Chan, 2020). We extracted observed individual factor scores for each scale. To test if T1 perceived stress negatively impacts the three T2 engagement variables, a path analysis was conducted. Then the moderator path model was tested to determine if the four T1 moderator factor scores—SR- and TR-grit, and SR-peer and SR-teacher academic support—moderated the relation between T1 perceived stress and the three academic engagement variables. All four interactions were added to the path model, in addition to stress and the main effect of each moderator (see Figure 1). Models included eight controls (i.e., three T1 engagement factor scores, primary language: English [English or not English], Spanish [Spanish or not Spanish], Other Language [Other Language or not Other Language], age, and gender). The rationale for including T1 equivalents of the T2 engagement outcomes is that the outcome variables at previous time point are likely to be influential on the same later outcome variables. The rationale for including the demographic controls was that such factors, like primary language, age, and gender, have been found to influence both the independent variable—stress (e.g., Weisskirch & Alva, 2002)—and the dependent variable—academic engagement (e.g., Kim & Suárez-Orozco, 2015). Multiple indicators of model fit were considered including the root mean square error of approximation (RMSEA) (values ≤ .06 indicates good fit), the standardized root mean square residual (SRMR) (values ≤ .08 indicates good fit), and the comparative fit index (CFI) (values ≥ .95 indicates good fit; Little, 2013). To manage missing data, a restricted maximum likelihood robust standard error estimation approach (i.e., MLR) was used, which can manage both non-normal and missing data (Muthén & Muthén 1998–2017). The model adjusted for class cluster effects by using the type = complex command in M*plus*.

# RESULTS

## Descriptives and Correlations

The descriptives are in Table 3, and the average scores were as expected. As predicted, perceived stress had a significant negative correlation with SR-grit, the moderator variables, and the engagement outcomes (Table 4).

## Relation Between Perceived Stress and Later Academic Engagement

We tested a model with T1 perceived stress predicting all three T2 perceived academic engagement outcomes (SR-emotional engagement, TR-emotional engagement, SR-behavioral engagement), including the eight controls (age, gender, primary language: English, Spanish, Other Language, and the three T1 engagement variables). Stress was a significant negative predictor of later T2 TR-emotional engagement; there was not a significant relation between perceived stress and later SR-emotion or -behavioral engagement (Table 5). Results indicated that fit statistics were adequate (RMSEA = .00, CFI = 1.00, SRMR = .00).

## Moderators of the Relation Between Perceived Stress and Later Academic Engagement

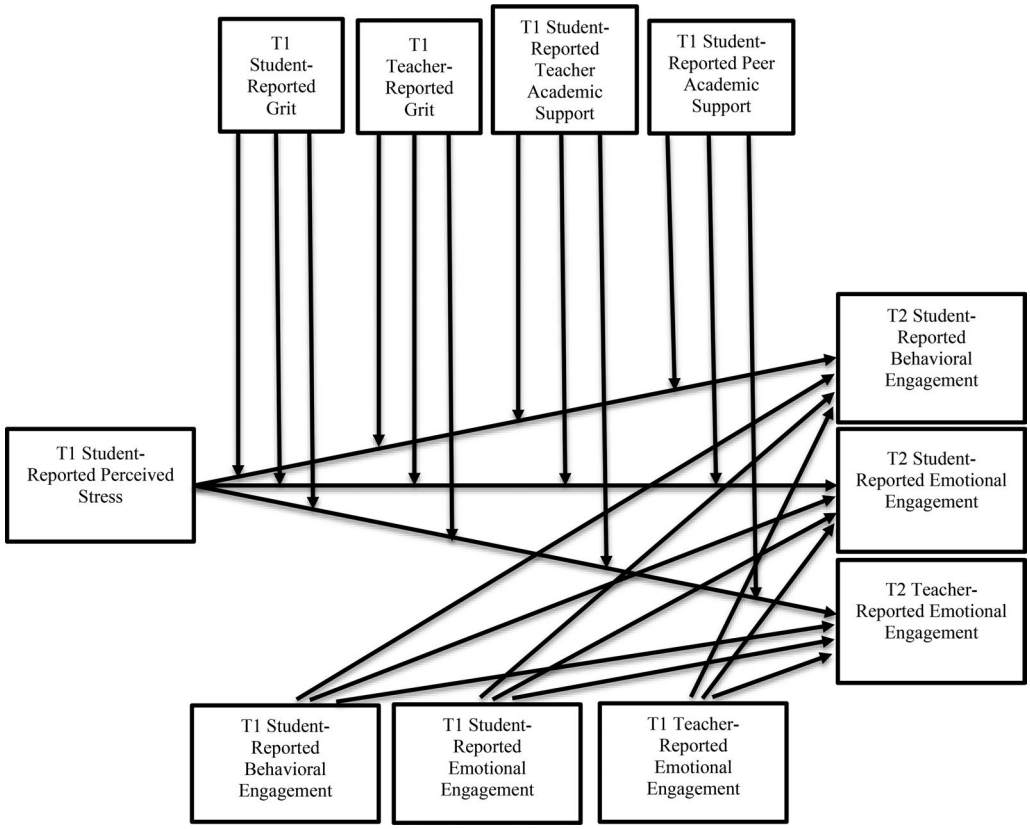
In the moderation model, all four moderators were included simultaneously—perceived SR-grit, TR-grit, SR-teacher academic support, and SR-peer academic support. All four were tested in the same model as moderators of stress' prediction of the three later perceived academic engagement outcomes (SR-emotional engagement, TR-emotional engagement, and SR-behavioral engagement); the model also included the eight controls. There were significant interactions of the moderators of SR-peer academic support and SR-grit with stress in

**Table 3.** Descriptives

| Measures | *M (SD)* | *α* | ω |
|---|---|---|---|
| T1 Stress | 2.49(.58) | .64 | **.66** |
| T1 SR Grit | 3.81(.68) | **.72** | **.74** |
| T1 TR Grit | 4.05(.86) | **.92** | **.93** |
| T1 Teacher Academic Support | 4.76(.38) | .59 | **.62** |
| T1 Peer Academic Support | 3.66(.99) | **.78** | **.79** |
| T1 SR Behavioral Engagement | 4.28(.64) | **.69** | **.73** |
| T1 SR Emotional Engagement | 4.32(.65) | **.73** | **.74** |
| T1 TR Emotional Engagement | 4.11(.88) | **.94** | **.94** |
| T2 SR Behavioral Engagement | 4.32(.58) | **.74** | **.78** |
| T2 SR Emotional Engagement | 4.12(.71) | **.78** | **.79** |
| T2 TR Emotional Engagement | 4.15(.82) | **.94** | **.94** |

*Note.* Bolded alpha and omega coefficients have an acceptable internal reliability of .65 or higher.

**Figure 1.** Protective Roles of Grit and Academic Support on the Relation Between T1 Stress and T2 Academic Engagement




*Note*: The controls of age, gender, and primary language: English, Spanish, and other were included in the model but not depicted in the figure. All predictors and moderators were set to be correlated with each other.

predicting TR-emotional engagement and SR-emotional engagement, respectively; the remaining two moderators, SR-teacher academic support and TR-grit, were not significant moderators in the model (Table 6, Figures 2 and 3; model fit was adequate: RMSEA = .00; CFI = 1.00; SRMR = .00).

Perceived peer academic support moderated the impact of T1 stress on later T2 TR-emotional engagement in the same four-moderator model, when controlling for T1 TR-emotional engagement (Table 6; Figure 2). This result is aligned with our expectation of a protective effect of high perceived peer academic support at higher levels of stress. Our expectation was confirmed that, for the high peer academic support group, TR-emotional engagement remained at the same level even for those with higher stress levels, in addition for those at lower stress levels. In contrast, EB students reporting low perceived peer academic support appeared to have lower levels of TR-emotional engagement at higher levels of stress, compared to those with high perceived peer academic support. The low peer academic support group had a negative slope of TR-engagement as stress increased, suggesting that engagement is lower for those with higher stress who also report low peer academic support. Interestingly, at very low stress levels, the low peer academic support group appeared to have higher engagement than the high peer academic support group. We expected that the high perceived academic support group would remain higher or equal in engagement compared to the low perceived peer academic support group at lower stress levels.

SR-grit was a significant moderator of the impact of T1 stress on later T2 SR-emotional engagement, controlling for T1 SR-emotional engagement (Figure 3). Contrary to the original hypothesis of a flat slope for the high SR-grit group (i.e., high grit group stays the same in engagement whether they experience low or high stress), there was a negative slope. Therefore, the protective effect of high SR-grit waned as stress increased. In essence, SR-grit only showed a protective effect on lower-stressed EB students. We had, however, expected a protective effect for higher-stressed students, rather than solely a protective effect of high perceived SR-grit for lower-stressed students.

## DISCUSSION

The present study contributes to the understanding of how risk and resilience processes influence the academic engagement of EB students. This study's finding of the

**Table 4.** Correlations

| Measures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. T1 Stress | -- | | | | | | | | | | | | | | |
| 2. T1 SR Grit | −0.45*** | -- | | | | | | | | | | | | | |
| 3. T1 TR Grit | −0.18* | .30*** | -- | | | | | | | | | | | | |
| 4. T1 Teacher Academic Support | −0.16 | .17* | .11 | -- | | | | | | | | | | | |
| 5. T1 Peer Academic Support | −0.15 | .14 | .29*** | .37*** | -- | | | | | | | | | | |
| 6. T2 SR Behavioral Engagement | −0.16* | .42*** | .35*** | .33*** | .31*** | -- | | | | | | | | | |
| 7. T2 SR Emotional Engagement | −0.22** | .35*** | .24** | .26** | .26** | .64*** | -- | | | | | | | | |
| 8. T2 TR Emotional Engagement | −0.26** | .27** | .82*** | .13 | .25** | .35*** | .26** | -- | | | | | | | |
| 9. T1 SR Behavioral Engagement | −0.30*** | .64*** | .34*** | .38*** | .35*** | .59*** | .49*** | .33*** | -- | | | | | | |
| 10. T1 SR Emotional Engagement | −0.37*** | .45*** | .32*** | .31*** | .38*** | .37*** | .62*** | .34*** | .59*** | -- | | | | | |
| 11. T1 TR Emotional Engagement | −0.19* | .29*** | .64*** | .15 | .17* | .34*** | .26** | .73*** | .35*** | .27** | -- | | | | |
| 12. Age | −0.02 | −0.15 | −0.29*** | .05 | −0.04 | −0.22** | −0.26** | −0.22** | −0.10 | −0.19* | −0.28*** | -- | | | |
| 13. Gender | .13 | .08 | .29*** | .05 | .06 | .05 | .03 | .17* | .08 | .05 | .18* | −0.15 | -- | | |
| 14. Primary Language: English | .05 | .12 | .06 | −0.10 | −0.12 | −0.06 | −0.01 | −0.01 | −0.01 | .00 | −0.02 | −0.02 | .23** | -- | |
| 15. Primary Language: Spanish | .02 | −0.09 | −0.11 | .10 | .12 | .09 | −0.01 | −0.07 | .13 | .00 | −0.08 | .03 | −0.21* | −0.63** | -- |
| 16. Primary Language: Other | −0.02 | −0.05 | .03 | .02 | −0.07 | −0.07 | .00 | .07 | −0.14 | −0.02 | .05 | −0.08 | .05 | −0.20* | −0.53** |

*Note.* *** = $p < .001$; ** = $p < .01$; * = $p < .05$. SR is self-report, TR is teacher report; gender: 0 = male; 1 = female; $n = 142$.

**Table 5.** T1 Stress as a Predictor of T2 Engagement

| | Student-reported Emotional Engagement | | | Teacher-reported Emotional Engagement | | | Student-Reported Behavioral Engagement | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Unstand. | Standard. | CI | Unstand. | Standard. | CI | Unstand. | Standard. | CI |
| Stress | .05(.10) | .04(.07) | [-0.14, .24] | **-0.19(.09)*** | **-0.11(.05)** | **[-0.37, −0.004]** | .03(.06) | .03(.06) | [-0.08, .14] |
| Control: Age | **-0.09(.04)*** | **-0.16(.08)** | **[-0.17, −0.01]** | .01(.06) | .01(.08) | [-0.10, .12] | −0.05(.03) | −0.13(.07) | [-0.10, .001] |
| Control: Gender | −0.05(.10) | −0.05(.09) | [-0.24, .14] | .08(.11) | .05(.07) | [-0.13, .29] | −0.02(.06) | −0.03(.08) | [-0.14, .09] |
| Control: Primary Language: English | −0.21(.13) | −0.14(.08) | [-0.45, .04] | .19(.21) | .10(.11) | [-0.22, .60] | −0.13(.09) | −0.14(.10) | [-0.31, .05] |
| Control: Primary Language: Spanish | **-0.22(.11)*** | **-0.19(.09)** | **[-0.43, −0.01]** | .19(.23) | .13(.16) | [-0.26, .65] | −0.09(.09) | −0.12(.12) | [-0.27, .09] |
| Control: Primary Language Other | −0.16(.19) | −0.10(.12) | [-0.53, .21] | .26(.26) | .12(.13) | [-0.25, .77] | −0.11(.11) | −0.11(.11) | [-0.33, .10] |
| Control: T1 SR-EE | **.46(.14)**** | **.47(.14)** | **[.19, .73]** | **.17(.07)*** | **.13(.06)** | **[.03, .32]** | .01(.07) | .02(.11) | [-0.13, .15] |
| Control: T1 TR-EE | .01(.06) | .01(.09) | [-0.11, .13] | **.61(.07)***** | **.68(.07)** | **[.48, .75]** | .06(.04) | .13(.08) | [-0.02, .13] |
| Control: T1 SR-BE | **.37(.17)*** | **.21(.10)** | **[.03, .71]** | −0.06(.12) | −0.03(.05) | [-0.30, .18] | **.59(.11)***** | **.52(.09)** | **[.39, .80]** |

*Note.* Boldfaced p-values are statistically significant based on the unstandardized estimates' significance (*$p < .05$; **$p < .01$; ***$p < .001$); unstand. = unstandardized; standard. = standardized; T1 SR-EE = time 1 student-reported emotional engagement; T1 TR-EE = time 1 teacher-reported emotional engagement; T1 SR-BE = time 1 student-reported behavioral engagement; SR-grit = student-reported grit; TR-grit = teacher-reported grit.

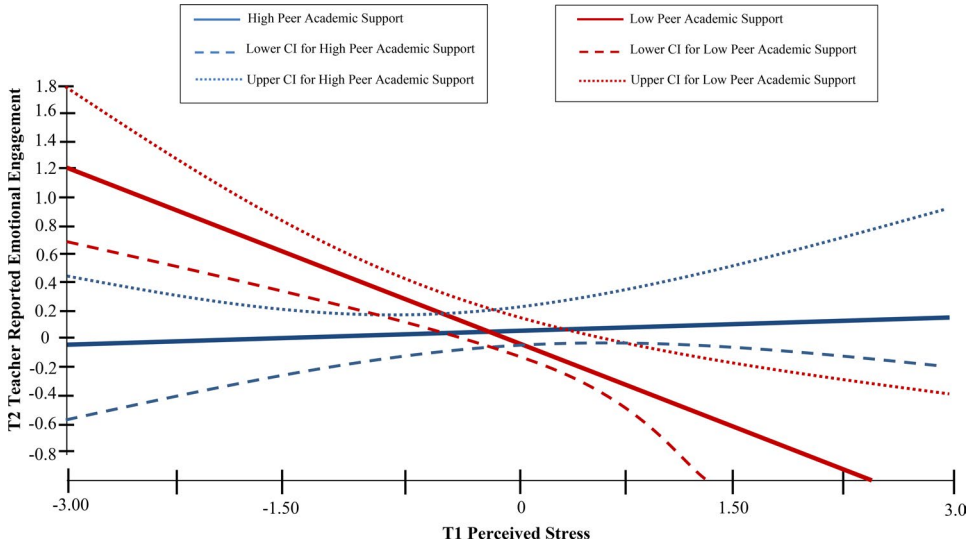
negative impact of stress on emotional engagement and the protective effect of perceived peer support at high levels of stress may inform school psychologists' practice, including their selection, adaptation, and development of socioemotional learning interventions in school. Specifically, this study found that perceived stress had a negative relation with later teacher-reported emotional engagement; high perceived SR-peer academic support (environmental factor) played a protective role in the relation between stress and later TR-emotional engagement

**Table 6.** T1 Grit and Academic Support Moderation of the Relation of T1 Stress With T2 Engagement

| | Student-reported Emotional Engagement | | | Teacher-reported Emotional Engagement | | | Student-Reported Behavioral Engagement | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Unstand. | Standard. | CI | Unstand. | Standard. | CI | Unstand. | Standard. | CI |
| Stress | .12(.14) | .09(.10) | (-0.16, .40) | **-0.17(.06)**** | **-0.09(.04)** | **(-0.29, −0.04)** | .08(.07) | .09(.08) | (-0.05, .21) |
| SR-grit | .03(.14) | .03(.14) | (-0.25, .31) | −0.05(.07) | −0.04(.05) | (-0.20, .09) | .09(.05) | .13(.08) | (-0.02, .19) |
| TR-grit | −0.03(.08) | −0.05(.13) | (-0.19, .13) | **.52(.07)***** | **.60(.07)** | **(.39, .65)** | .06(.06) | .13(.12) | (-0.06, .17) |
| Teacher Academic Support | .20(.12) | .06(.04) | (-0.04, .43) | −0.20(.16) | −0.05(.04) | (-0.52, .12) | .23(.20) | .11(.10) | (-0.16, .61) |
| Peer Academic Support | −0.02(.06) | −0.02(.07) | (-0.13, .10) | .02(.06) | .02(.05) | (-0.11, .14) | .01(.05) | .02(.08) | (-0.09, .10) |
| Stress x SR-grit | **-0.55(.16)***** | **-0.23(.06)** | **(-0.86, −0.24)** | −0.17(.16) | −0.05(.06) | (-0.49, .15) | −0.23(.13) | −0.15(.09) | (-0.48, .01) |
| Stress x TR-grit | −0.06(.06) | −0.04(.04) | (-0.18, .06) | .06(.06) | .03(.03) | (-0.05, .18) | .03(.08) | .02(.06) | (-0.12, .17) |
| Stress x Teacher Academic Support | −0.21(.32) | −0.02(.04) | (-0.83, .41) | −0.16(.53) | −0.01(.05) | (-1.20, .87) | .90(.53) | .16(.09) | (-0.14, 1.95) |
| Stress x Peer Academic Support | .01(.18) | .00(.09) | (-0.35, .36) | **.21(.05)***** | **.08(.02)** | **(.11, .31)** | −0.15(.14) | −0.11(.11) | (-0.43, .14) |
| Control: Age | **-0.09(.05)*** | **-0.16(.09)** | **(-0.18, −0.01)** | .06(.03) | .08(.05) | (.00, .13) | −0.05(.03) | −0.12(.08) | (-0.10, .01) |
| Control: Gender | −0.03(.09) | −0.03(.08) | (-0.21, .14) | −0.06(.08) | −0.04(.05) | (-0.22, .10) | −0.05(.05) | −0.07(.07) | (-0.16, .05) |
| Control: Primary Language: English | **-0.23(.10)**** | **-0.16(.06)** | **(-0.41, −0.04)** | .23(.12) | .12(.07) | (-0.01, .46) | −0.10(.09) | −0.11(.10) | (-0.28, .08) |
| Control: Primary Language: Spanish | **-0.25(.09)**** | **-0.22(.08)** | **(-0.42, −0.08)** | **.26(.12)*** | **.17(.09)** | **(.01, .51)** | −0.06(.10) | −0.08(.14) | (-0.26, .14) |
| Control: Primary Language Other | −0.23(.14) | −0.14(.09) | (-0.51, .05) | **.32(.12)**** | **.15(.07)** | **(.08, .56)** | −0.14(.09) | −0.13(.09) | (-0.32, .03) |
| Control: T1 SR-EE | **.48(.13)***** | **.49(.14)** | **(.23, .74)** | .09(.06) | .07(.05) | (-0.04, .22) | .00(.06) | .00(.09) | (-0.11, .11) |
| Control: T1 TR-EE | .04(.06) | .06(.09) | (-0.08, .16) | **.33(.05)***** | **.37(.07)** | **(.23, .43)** | .02(.04) | .03(.10) | (-0.07, .10) |
| Control: T1 SR-BE | .38(.24) | .22(.14) | (-0.08, .84) | −0.04(.16) | −0.02(.07) | (-0.35, .28) | **.48(.10)***** | **.42(.09)** | **(.28, .69)** |

*Note.* Boldfaced p-values are statistically significant based on the unstandardized estimates' significance (*$p < .05$; **$p < .01$; ***$p < .001$); unstand. = unstandardized; standard. = standardized; T1 SR-EE = time 1 student-reported emotional engagement; T1 TR-EE = time 1 teacher-reported emotional engagement; T1 SR-BE = time 1 student-reported behavioral engagement; SR-grit = student-reported grit; TR-grit = teacher-reported grit.

**Figure 2.** Moderating Role of Student-Reported Peer Academic Support (PAS) on the Relation Between T1 Stress and T2 Academic Engagement




*Note*: The perceived stress X axis and the teacher-reported engagement Y axis are in the metric of standard deviations from a mean of zero. CI = confidence interval; the CI in the legend is < .05.

at higher levels of stress; and high perceived SR-grit (individual factor) played a protective role in the relation between stress and later SR-emotional engagement at lower levels of stress. This finding is aligned with the limited EB resilience research reporting that some individual and environmental factors protect against high levels of risk factors; these and other studies have also found that some individual and environmental factors only play a protective role at low levels of risk factors (e.g., Golden et al., 2018; Perez et al., 2009). The results were consistent with our academic peer support hypothesis that perceived peer academic support would be protective for those at

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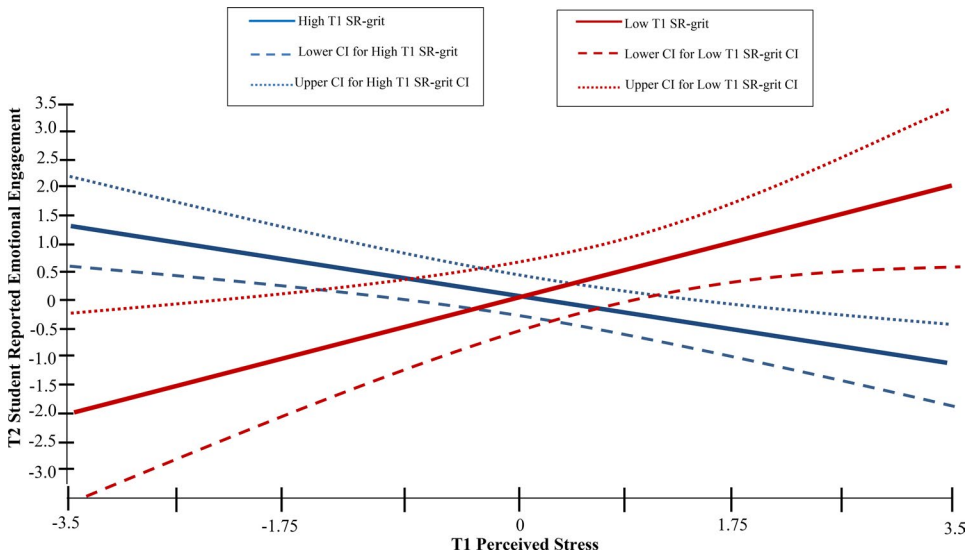
**Figure 3.** Moderating Role of Student-Reported Grit (SR-grit) on the Relation Between T1 Stress and T2 Academic Engagement




*Note*: The X and Y axes are in the metric of standard deviations from a mean of zero. CI = confidence interval; the CI in the legend is < .05.

high stress. The results were significant for perceived grit as a moderator but grit was not protective at high stress; rather, grit was only protective at low stress. The discussion addresses the role of stress, grit, and academic support for low-income, EB elementary-aged students in the context of a risk and resilience model.

## Perceived Stress and Academic Engagement

As expected, perceived stress had a significant negative effect on later TR-emotional engagement, even when adjusting for previous TR-engagement. EB students who reported higher levels of stress had lower levels of later TR-emotional engagement, compared to students reporting lower levels of stress. Although a few studies have examined the negative effects of perceived stress on academic engagement in adolescent and college-aged students (Raufelder et al., 2014; Serrano & Andreu, 2016; Thomas & Borrayo, 2016), the current study is, to our knowledge, the first to demonstrate a negative impact of perceived stress on later academic engagement for EB elementary-aged students. This result reinforces previous research on the role of stress as a risk factor for academic functioning (e.g., Masten, 2001), particularly for Latinx students' academic achievement (Albeg & Castro-Olivo, 2014). Future research may build on the present study by including a variety of types of stress (e.g., systemic-induced stress like stress from discrimination or parent immigration status) and/or a variety of different ethnic EB groups to capture the growing superdiversity of EB students, although this sample does reflect the diversity of EB students in the U.S. (e.g., approximately 75% of EB are Latinx in the U.S.; NCES, 2022).

## The Protective Roles of Grit and Academic Support

### *Peer Academic Support*

At the core of the present study's theoretical model were potential protective factors at individual and environmental ecological levels which were posited to mitigate the negative effects of stress. The significant interaction between perceived stress and perceived peer academic support in predicting later TR-emotional engagement suggested a protective effect at high levels of stress (Table 5 and Figure 2). Thus, the negative effects of stress on TR-emotional engagement were mitigated by high levels of perceived peer academic support. This finding is in line with results of other studies in which peer and teacher support were assessed as protective processes for at-risk students (e.g., Plunkett et al., 2008; Suárez-Orozco et al., 2009). Furthermore, peer academic support has been found to have protective, mitigating effects on the relation between perceived racism in school and academic outcomes in a Black adolescent sample (Golden et al., 2018), with similar patterns found between perceived peer academic support and stress in the current study. Similar proxies of peer support have demonstrated positive relations with later academic outcomes of EB students, as noted in research by Garcia (2021) which found high peer English vocabulary skills impacted subsequent English vocabulary growth in young EB students. Overall, there is surprisingly limited peer academic

support research for K–12; peer support research is more evident in higher education literature. Based on the findings from the current study, peer academic support functions as a protective factor in the face of the risk factor of stress, consistent with the theorized role of environmental protective factors in Masten's risk and resilience model (Masten, 2015). Future peer support research with EB K–12 students would benefit from identifying the unique nature of peer and teacher support among EB. For instance, one could explore how EB students operationalize teacher support, perhaps in a unique and different way than non-EB students might define it. Once a more EB-relevant definition of the construct and experience of perceived teacher support is created, then a measure of EB-relevant teacher support could be created, and a moderation model could be tested to determine the protective effects of such support.

### *Student-Reported Grit*

The results were significant for grit as a moderator; however, the moderation patterns were different from our hypothesis that grit would buffer the negative impact of high stress on emotional engagement. For those with lower stress, perceived SR-grit mitigated the negative impact of stress on later SR-emotional engagement, but not for those with higher stress (Table 5 and Figure 3). Surprisingly, studies of grit have not tested grit as a protective factor in any moderation model with K–12 students, to our knowledge; previous grit moderation research has been sparse and largely with college students. For instance, one study with college students found grit to be a protective moderator of the relation between post-traumatic stress symptoms and suicidality (Marie et al., 2019); another study found grit to be a protective factor in the relation between loneliness and academic stress (Mosanya, 2021). In this study, SR-grit's moderating role in the relation between perceived stress and later SR-emotional engagement offers the contribution of being novel in stress-engagement research. However, further study is necessary to evaluate the construct of perceived grit along with its protective and predictive power for low-income EB populations (O'Neal et al., 2019), particularly in the context of stress. Perhaps, individual socioemotional learning factors, like grit, can only have so much protective power in the face of environmental stressors, like school-based discrimination and low-quality literacy education, that may be unique systemic barriers to some members of low-income, EB communities, with potential impacts on the ability for them to engage in learning (e.g., Evans, 2004; Gorski, 2018; Tefera et al., 2019).

## LIMITATIONS

The sample size may have limited the power to detect significant results. Due to the limited sample size, factor scores were used instead of latent variables. Note that adapted measures (perceived stress; SR- and TR-grit) were used in the present study to increase relevance to the school environment and accessibility for the current sample (i.e., EB elementary school-aged children). Perhaps these adaptations may have affected the results even though they were adequate in terms of the omega indicator of internal reliability; however, the adapted stress measure was a bit lower than the typical .65 cutoff for alphas (DeVellis, 2003). Note that a previous study using this sample found adequate latent model fit for this stress measure (O'Neal, 2018) and for the adapted grit measures (O'Neal et al., 2019). It should be noted that the stress measure used in the present study does not allow for investigation of specific stressors unique to multi-marginalized populations, such as acculturative stressors. Controlling for acculturative stress or adding acculturative stress as a predictor in a model may strengthen future studies. Controlling for previous engagement was a strength of the present study's longitudinal design, but the short-term design and lack of multiple timepoints were weaknesses. A weakness was not including a direct measure of achievement as an outcome, like a state standardized test or a literacy assessment; a future study could build on the present study by adding an achievement task as an outcome. This study would also be stronger if achievement were considered as a potential confounding variable or how achievement might play a role in a mechanism, like moderation or mediation, explaining the relation between stress and engagement, or as a predictor of stress. Similarly, language proficiency might play a role in how and for whom stress impacts engagement, so it would have benefited the current study and future studies to include language proficiency and achievement as a variable in similar models. Furthermore, the use of self-report data was a limitation that was, however, strengthened by including teacher reports.

The use of an art teacher as a teacher rater for all of the third-grade students in the sample may have affected teacher-reported variance. Indeed, a weakness of this study was the use of a third-grade art teacher who reported a higher average T2 emotional engagement for all of the third graders compared to the average emotional engagement rating given by the academic-content teachers for the fourth and fifth graders. However, the results for the two models in this study had similar magnitude of the key significant variables when either all participants were included or only fourth and fifth graders were included. This study also

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adjusted for teachers as clusters in our model testing which may have helped mitigate possible internal validity concerns when testing models with a sample in which one art teacher rated the third graders' teacher-reported emotional engagement outcome. Finally, the use of data which is eight years old may be seen as a weakness of the present study. At the same time, we would argue that the present study is still relevant eight years after data collection given that (a) the school's demographics have not changed much; (b) the number of EB remain high in the U.S., if not a bit higher; and (c) it is likely that EB students will continue today to rely on peer support as a protective factor, in the face of stress, in order to remain engaged in school.

## IMPLICATIONS

The present study is the first, to our knowledge, to find that perceived stress has a negative impact on later teacher-reported emotional engagement for low-income elementary-aged EB students, when adjusting for previous engagement. We, therefore, suggest that school psychologists consider EB perceived stress as a potential relevant target of preventive efforts, such as the implementation of trauma- and healing-informed schools. The goal of the preventive efforts would be to alleviate stress and close the opportunity gap (e.g., Cavanaugh, 2016). Based on these results, it may be worth testing if an indirect method, like systemic school consultation, can lessen the negative impact of stress on students' engagement.

Perceived SR-grit acted as a protective factor for lower-stressed students, implying that school psychologists might consider grit to be a protective factor, but grit's protection may have its limits for more stressed students. This finding highlights the limitations of an emphasis on grit for high-stressed, low-income populations and the necessity of examining other environmental factors at play (e.g., Banse & Palacios, 2018). Based on perceived peer academic support's role as a protective factor in the present study, school psychologists may consider helping teachers facilitate peer academic support in their classes. Future research could explore if peer academic support skills may serve as surrogate systems of support for students who find other sources of support (e.g., teachers) to be inadequate (Plunkett et al., 2008; Salazar, 2001).

## CONCLUSION

In conclusion, this short-term longitudinal study found that stress had a negative impact on later teacher-reported emotional engagement for this sample of Emergent Bilinguals. Perceived peer academic support acted as a protective factor for those at high stress levels, and perceived grit acted as a protective factor for those at low stress levels. The results of the present study are consistent with risk models in that EB engagement may be hindered in the context of stress, and future research would benefit from further examination of a resilience model testing individual factors, like grit, and environmental factors, like peer academic support, as protective factors for elementary-aged EB students.

## DISCLOSURE

The authors have no conflicts of interest to report.

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