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The Role of Parental Involvement in Narrowing the Academic Achievement Gap for High School Students With Elevated Emotional and Behavioral Risks

Matthew C. Lambert, PhD[1], Kristin Duppong Hurley, PhD[1], Stacy-Ann January, PhD[2], and Jacqueline Huscroft D'Angelo, PhD[1]

Abstract

Parental involvement in school is an undoubtedly important element of a student's educational experience and outcomes. Students with elevated emotional and behavioral risks (EBR) tend to experience poor educational outcomes, and research suggests varying levels of parental involvement across domains for these at-risk students. However, there is minimal research on the links between elevated EBR, parental involvement, and academic achievement for high school students. The purpose of this study was to examine the degree to which (a) parental involvement differed between high school students with elevated EBR and students without EBR, (b) parental involvement was related to academic outcomes, and (c) the gap in academic achievement between students with elevated EBR and students without EBR could be attributed to differences in parental involvement. To address these questions, we fit a structural equation model using data from the High School Longitudinal Survey of 2009. The results demonstrated that (a) parental involvement was significantly lower in multiple domains for students with elevated EBR, (b) was significantly associated with academic outcomes, and (c) differences in parental involvement could account for a significant proportion of the achievement gap. Research limitations, directions for future research directions, and implications are discussed.

Keywords

parent involvement, high school, academic achievement, emotional and behavioral risk

The involvement of a parent or guardian in a child's education is a strong predictor of student academic outcomes (Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2003, 2005, 2007, 2012; Patall et al., 2008). Yet, there are different conceptualizations of what comprises parental involvement in education, such as school-based involvement like attending school activities, home-based involvement like reading to a child, and academic socialization that includes parental aspirations toward their child's education (Hill & Tyson, 2009). Considering each of these different types of parental involvement is important, as research has indicated mixed findings for different conceptualizations of parental involvement, especially for secondary students predicting academic outcomes (e.g., Hill & Tyson, 2009). Research has explored whether different student demographic populations have varied degrees of parental involvement in school (e.g., Hill et al., 2004; Hill & Tyson, 2009; Wang et al., 2014). Interestingly, students with elevated emotional and behavioral risks (EBR) may have differential levels of parental involvement in school compared to the general population (Wagner et al., 2005; Duppong Hurley et al., 2019)—in some areas, parental involvement was higher for students with EBR (e.g., communication with schools), but for others, parental involvement (e.g., parental aspirations, home activities, and school activities) was lower for these students compared to peers in the general population. Students with EBR also demonstrate poor academic outcomes (e.g., Bradley et al., 2008; Gage et al., 2017; Wagner et al., 2005; Wagner & Newman, 2012). However, there is minimal research on the role of parental involvement in the academic achievement of students with elevated EBR. It essential to begin to explore the linkages between elevated EBR, different conceptualizations of parental involvement in school, and academic outcomes for secondary students.

[1]University of Nebraska–Lincoln, USA
[2]University of South Florida, Tampa, USA

Corresponding Author:
Matthew C. Lambert, Department of Special Education, University of Nebraska–Lincoln, 273 Barkley Memorial Center, Lincoln, NE 68583, USA.
Email: matthew.lambert@unl.edu

Parental involvement is most often studied in elementary populations (e.g., Jeynes, 2003, 2005; Ma et al., 2016); however, evidence indicates that parental involvement remains an important predictor of outcomes for secondary students (e.g., Hill & Tyson, 2009; Jeynes, 2007). Despite the large parental involvement literature, the majority of frameworks focus on activities that may not be relevant for middle and high school students (e.g., volunteering in the classroom). A systematic review of the literature on parental involvement with middle school students conceptualized a parental involvement framework that includes home-based involvement, school-based involvement, and academic socialization (Hill & Tyson, 2009). One important difference between Hill and Tyson's framework and other models (e.g., Epstein, 1987) is the inclusion of academic socialization, which involves parents' communication about aspirations for their child's future education and occupation. Support has been demonstrated for the role of parent–child conversations about how education may affect their future in regard to academic achievement (Wang et al., 2014). Individual studies examining parents' aspiration for their child's career or postsecondary education have found it to be predictive of positive outcomes (Catsambis, 2001; Fan & Chen, 2001; Singh et al., 1995; Yan & Lin, 2005). In contrast, the importance of home-based involvement for secondary students is mixed (e.g., Hill & Tyson, 2009). For example, Hill and Tyson found that help with homework was negatively related to middle school students' achievement, whereas other home-based support predicted student achievement. These findings are consistent with studies demonstrating the positive influence of home-based activities and structures (Izzo et al., 1999; Wang et al., 2014; Wang & Sheikh-Khalil, 2014) and negative influence of homework support for older students (Degner, 2013). School-based involvement for secondary students is often predictive of academic outcomes (Hill & Tyson, 2009), with some studies finding that parent–school communication is predictive of academic achievement (Wang et al., 2014), while other studies have not found school-based involvement to be as important of a predictor of secondary students' academic achievement (Wang & Sheikh-Khalil, 2014).

Although parental involvement in school is important for all students, it is essential for more than 4 million students diagnosed with emotional and behavioral disorders in the United States (Ghandour et al., 2019). Students identified with emotional and behavioral disorders are more likely to experience poor educational and employment outcomes and are more likely to be arrested than their peers with and without disabilities (e.g., Bradley et al., 2008; Gage et al., 2017; Wagner et al., 2005; Wagner & Newman, 2012). Compared to peers who either have other types of disabilities or no disabilities, parents of students receiving special education services due to emotional or behavioral disorders are less likely to volunteer at school or attend a school event (Wagner et al., 2005). Yet, these parents are more likely to help with homework, advocate for services for their child, and attend parent–teacher meetings, suggesting that parents are interested in their child's education (Newman, 2005; Wagner et al., 2005). Another study of high school students with elevated EBR found lower levels of parental involvement in the home, school activities, parent–child communication, and parental aspirations in comparison to students without disabilities, but similar rates of communication with the school and confidence in the parental ability to support their child's homework (Duppong Hurley et al., 2019). The often-limited social capital of parents of students with elevated emotional and behavioral risks may be complicated by feelings of isolation, blame, and stigma regarding their child's emotional and behavioral problems (e.g., Kutash et al., 2015). Deficit-based approaches of school and community professionals may result in parents feeling further blame as they struggle to address their child's behavior in school. In turn, parental engagement in productive working relationships with school professionals may be weakened. Efforts to improve the parental involvement of families in their child's education and emotional/behavioral services is an emerging approach that has demonstrated some progress in improving outcomes for students with EBR (Kutash et al., 2011, 2013). Given the long-standing poor educational performance of these students, there is a critical need to identify factors that might mitigate these outcomes. It is not known the extent to which the direct effect of poor outcomes of students with EBR is accounted for by different aspects of parental involvement. Investigating this would shed light on potential intervention targets for this at-risk student population.

It is imperative to consider how the specific conceptualizations of parental involvement (i.e., attending school activities and parent–child communication about education) might predict academic outcomes for high school students with EBR. In previous research, we found a six-factor conceptualization of parental involvement in schools based on the Hill and Tyson's (2009) framework had strong psychometric properties for both high school students in the general population (Duppong Hurley et al., 2017) and high school students with elevated EBR (Duppong Hurley et al., 2019). Thus, using this six-factor framework (school–parent communication, parent attendance of school activities, parent–child communication about education, parental academic aspirations, parent–child educational activities at home, and parental support for homework), the purpose of this study was threefold, examining the degree to which (a) parental involvement differed between students with EBR and students without EBR (i.e., the comparison sample), (b) parental involvement was related to academic outcomes, and (c) the gap in academic achievement between students

with EBR and the comparison sample can be attributed to differences in parental involvement.

Method

Data Source

Data for this study were drawn from the *High School Longitudinal Study of 2009* (HSLS:09). The HSLS:09 is a nationally representative study of ninth-grade students enrolled in U.S. public and private schools in Fall 2009. Detailed information about the sampling process is publicly available and reported elsewhere (Ingels et al., 2011). The total sample of students and families that completed any survey data was 24,658.

Participants

Of the total sample, 16,429 had valid data from both the participating student and the parent, and 15,431 of those dyads had sufficient data to determine the student's EBR status. Because research suggests that families of students with certain disabilities vary significantly in their parental involvement behaviors (Newman, 2004), students with the following parent- or school-identified disabilities were excluded from this study: learning disability, autism, hearing or visual impairment, and intellectual disability. As a result, 13,200 student–parent dyads were eligible to be included in the current study.

Elevated emotional and behavioral risks. Several criteria were applied to identify the group of students with elevated EBR. We triangulated parent-reported data on four variables: (a) whether the student had been suspended or expelled from school, (b) the extent to which the student felt anxious or depressed, (c) whether the school contacts the parent about the student's behavior, and (d) the extent to which the student has behavior problems in school. Students were considered to have elevated EBR if two or more items were endorsed—2,010 students were identified. A student was also placed into the elevated EBR group if the student had been previously diagnosed with attention-deficit/hyperactivity disorder—an additional 526 students were identified resulting in a total of 2,536 students with elevated EBR. Note that due to a majority of missing Individualized Education Program (IEP) data from schools, it was unknown as to which students in the data set had an IEP for an emotional or behavioral disorder.

Analytic sample. Because a small proportion of students were missing all demographic data (0.08%; $n = 106$), they could not be included in the analysis models, so the analytic sample consisted of 13,094 student–parent dyads. All of the students were enrolled in the ninth grade in schools throughout the United States. Just more than 19% of participants had elevated EBR ($n = 2,503$). The student sample was fairly evenly split between male (48.5%; $n = 6,350$) and female students (51.5%; $n = 6,744$). Just under 58% of the students were White and non-Hispanic ($n = 7,577$), 9.4% were Black or African American and non-Hispanic ($n = 1,237$), 8.6% were Asian ($n = 1,132$), 8.6% were multiracial ($n = 1,128$), and 15.4% were Hispanic or Latinx ($n = 2,020$). A little more than 9% of students ($n = 1,249$) were English learners and 6.2% of students ($n = 821$) were multilingual. More than three-fourth of students attended a public school (78.5%; $n = 10,283$). In terms of school location, 29.3% of students ($n = 3,835$) attended a school in an urban area, 36.1% in a suburban area ($n = 4,723$), 11.5% in a "town" ($n = 1,510$), and 23.1% in a rural area ($n = 3,026$).

Approximately 14% of students ($n = 1,842$) were living in a household with incomes below the federal poverty threshold (i.e., less than US$21,954 for a family of four), and an additional 15.9% were living in households with incomes below 185% of the poverty threshold. Just more than 5% of parents ($n = 687$) had not earned a high school diploma, 33.5% had completed high school or earned a GED ($n = 4,385$), 15.2% had earned an associate's degree ($n = 1,993$), and 46.3% had earned a bachelor's or advanced degree ($n = 6,029$). The most common parent relationship patterns were two biological or adoptive parents (63.4%; $n = 8,303$), single biological or adoptive mother (15.6%; $n = 2,043$), and biological or adoptive mother and other guardian (e.g., stepfather; 12.2%; $n = 1,591$). Just under 74% of parent survey respondents were mothers ($n = 9,673$).

Measures

This study included measures of parental involvement, student and family characteristics, and educational outcomes.

Parental involvement. Parental involvement was operationalized using 23 indicators across six domains. School-based parental involvement consisted of two domains, *school–parent communication* contained three items assessing whether parents (a) attended conferences with teachers, (b) talked with their child's school counselor, or (c) talked with either a teacher or a school counselor about college; and *school activities* contained five items measuring whether parents (a) attended Parent-Teacher Organization meetings, (b) attended school events, (c) volunteered at school or in their child's classroom, (d) participated in a fundraiser for the school, or (e) attended a school meeting. The area of home-based parental involvement includes a domain on *home activities* with five items on whether parents were engaged in the following educational activities with their child: (a) working on a computer, (b) going to a live show, (c) going to a museum, (d) attending a science

fair, and (e) discussing a program or article about science, mathematics, or technology and a domain on *homework support* with three variables indicating the parent's confidence in helping with (a) mathematics homework, (b) science homework, and (c) English homework. The area of academic socialization included the domain of *parent–child communication about education/occupation* that had five student-reported items measuring whether the student had talked with parents about taking (a) mathematics, (b) science, and (c) other courses; (d) going to college; or (e) future careers, and a domain on *parental educational aspirations for their child's education* included two parent-reported variables assessing (a) parents' beliefs on how far their child will get academically (e.g., less than high school, bachelor degree, doctoral degree, etc.) and (b) their confidence in whether their child has the ability to complete a bachelor's degree. A six-factor latent variable model operationalizing parental involvement has been validated in a previous study using these indicators from the HSLS:09 data set (Duppong Hurley et al., 2017). Another study using these data demonstrated measurement invariance of the latent factor model between students with elevated EBR and students without elevated EBR (Duppong Hurley et al., 2019).

Student and family characteristics. Student characteristics served as covariates in the analyses and included student sex, student race, and family poverty status. Student race was represented by a set of dummy-coded variables, where Black or African American and Asian were the focal categories because Black or African American students were disproportionately overrepresented in the elevated EBR population and Asian students were disproportionately underrepresented in the elevated EBR population. Poverty status was a dichotomous variable indicating whether the student was living in a household with an income below the federal poverty threshold (i.e., less than US$21,954 for a family of four). Poverty was included as a covariate because a larger proportion of students with EBR lived in households with lower income compared to students in the comparison group.

Educational outcomes. Educational outcomes included the student's ninth-grade grade point average (GPA) aggregated across all academic courses (i.e., English, mathematics, science, and history) and scores from a standardized mathematics assessment. GPA could possibly range from 0.00 (i.e., "F" in all courses) to 4.00 (i.e., "A+" in all courses). In this data set, GPA ranged from 0.25 to 4.00 with a mean of 2.80 ($SD = 0.92$). The standardized mathematics assessment is a norm-referenced measure of achievement relative to the population of ninth-grade students. The assessment is scaled as a T-score with a mean of 50 and a standard deviation of 10. For this data set, mathematics assessment scores ranged from 24.10 to 82.19 with a mean of 53.37 ($SD = 9.51$).

Data Analysis Plan

Mplus v7.4 was used to fit a structural equation model (SEM) to analyze the data. The SEM consisted of two parts, the measurement model (for operationalizing the parental involvement constructs) and the structural model (for examining the substantive associations between variables). The measurement model for the parental involvement factors consisted of six latent variables representing the major components of parental involvement: (a) school communication, (b) school activities, (c) home activities, (d) parent–child communication, (e) academic aspirations, and (f) homework. This measurement model has been validated with students in the general population and students with elevated EBR in two previous studies (Duppong Hurley et al., 2017, 2019) and demonstrated acceptable fit to the data. Because the fit of the measurement model was demonstrated in prior studies using the HSLS:09 data set, the fit of the measurement model was not examined separately for this study.

The structural portion of the model was used to address three research aims: (a) the degree to which parental involvement differed between students with elevated EBR and the comparison group, (b) the degree to which parental involvement was related to academic outcomes, and (c) the degree to which the gap in academic achievement between students with elevated EBR and the comparison group can be attributed to differences in parental involvement. Student sex, race, and poverty status were used as covariates in the model to account for important differences between elevated EBR and comparison samples. The conceptual path diagram for the structural model is shown in Figure 1. Note that this diagram does not show all the elements of the analytical SEM—for example, the academic outcomes are depicted as a single variable but were modeled as separate variables, and the structural paths for the covariates are not shown.

To address the first research aim, we regressed the six latent parental involvement factors onto the dummy-coded variable representing elevated EBR status while controlling for the set of covariates (i.e., sex, race, and poverty). To address the second research aim, we regressed the GPA and mathematics assessment variables onto the six latent parental involvement factors. To address the third research aim, we computed the total effect of elevated EBR for both the GPA and the mathematics assessment outcomes and then decomposed the total effect into the (a) direct effect and (b) indirect effect (see Figure 2; direct effect [path c'] + indirect effect [paths $a + b$] = total effect [path c]).

In this case, the total effect represents the *gap in academic achievement* (on GPA and mathematics assessment scores) between students with elevated EBR and the comparison group when controlling for the set of covariates (path c from Figure 2, which is equivalent to the sum of $a + b + c'$). The direct effect represents the degree to

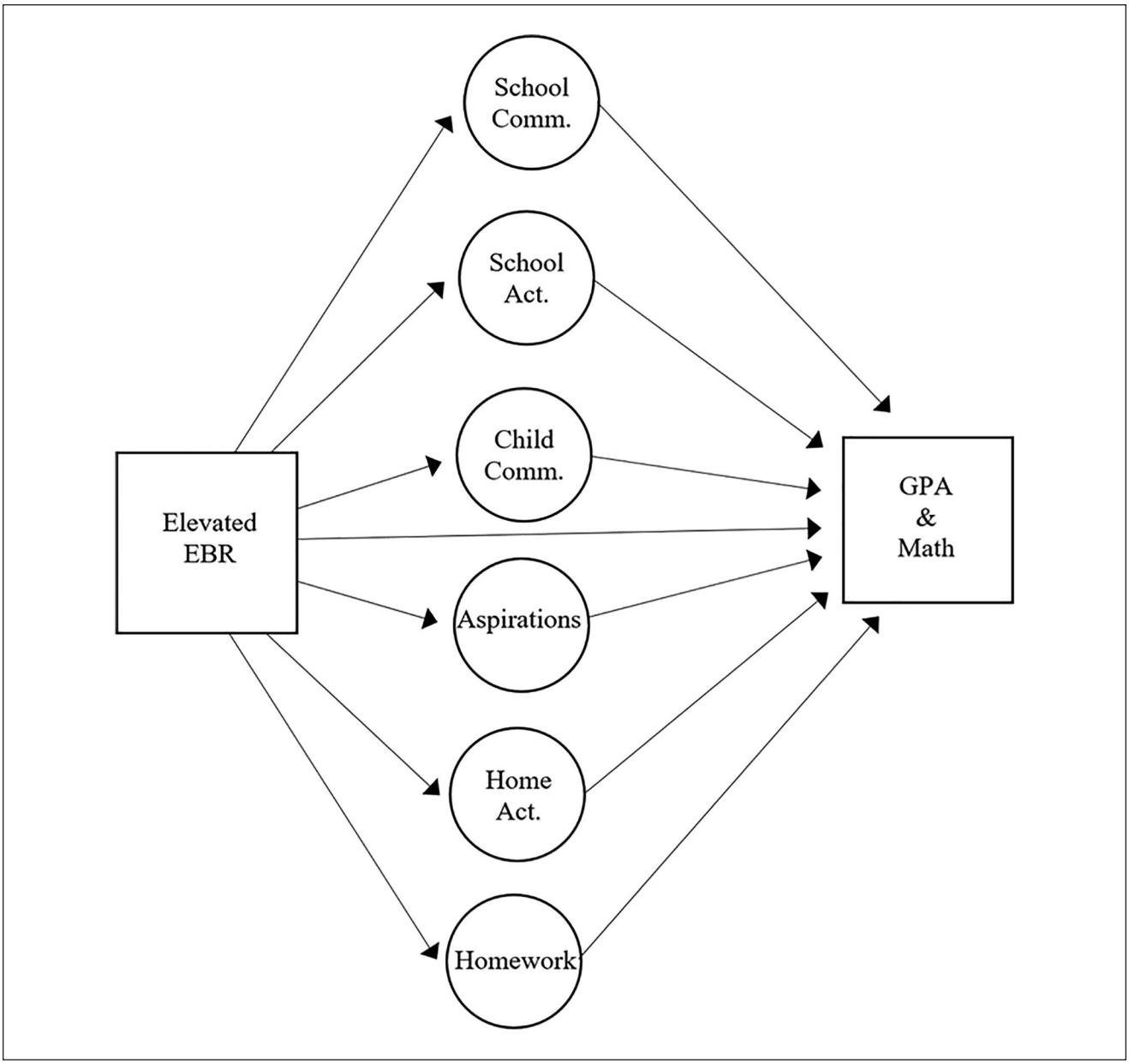

Figure 1. Conceptual path diagram of the structural model.
Note. This diagram does not show all of the elements of the analytical SEM—for example, the academic outcomes are depicted as a single variable but were modeled as separate variables, and the structural paths for the covariates are not shown. EBR = emotional and behavioral risks; GPA = grade point average; SEM = structural equation model.

which the gap *remains* between students with elevated EBR and the comparison sample *after accounting for differences in parental involvement* (path *c′* from Figure 2). The indirect effect represents the degree to which the gap in academic achievement can be *attributed to differences in parental involvement* between students with elevated EBR and the comparison sample (difference between *c* and *c′* from Figure 2, which is equivalent to the sum of the products of a_x and b_x). A statistically significant indirect effect indicates that a significant portion of the total effect of elevated EBR status on academic outcomes was indirectly transmitted through parental involvement. That is, differences were observed in academic achievement between students with elevated EBR and the comparison sample *because* of differences in parental involvement between students with elevated EBR and the comparison sample. To help quantify and interpret the indirect effects, we computed the percentage of the total effect that is attributable to

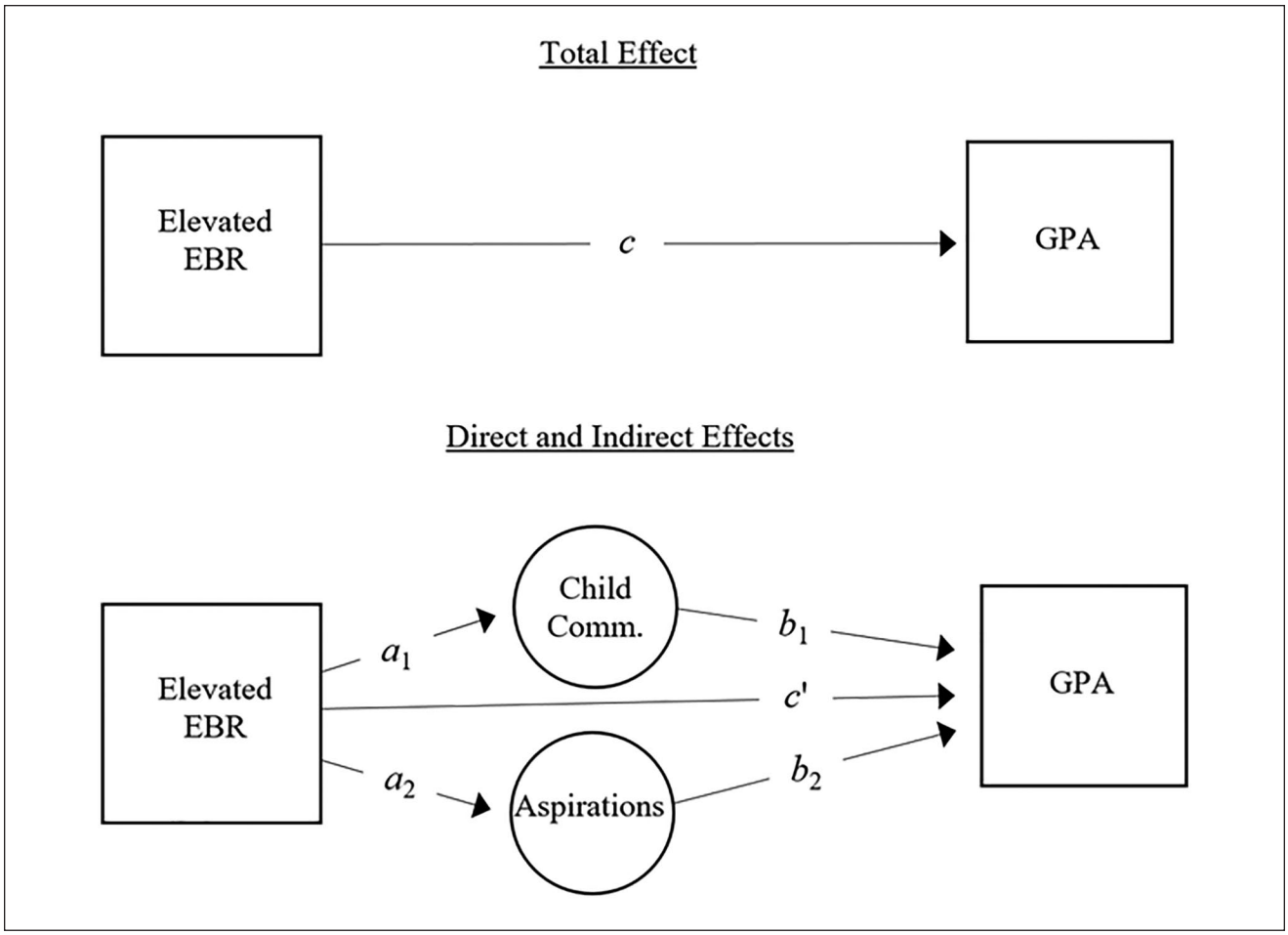

Figure 2. Conceptual path diagrams for total, direct, and indirect effects.
Note. EBR = emotional and behavioral risks; GPA = grade point average.

the indirect effect (sometimes referred to as *percentage mediated*) by dividing the indirect effect by the total effect—the higher the percentage, the greater the degree to which the indirect effect explains differences in academic achievement. In addition to computing the "overall" indirect effect, we also examined the *specific* indirect effects for *each* of the parental involvement factors to better understand the unique contribution of the six different domains of parental involvement (i.e., the difference between *c* and *c′* attributable to *each* parental involvement factor).

Because all of the latent factor indicators were categorical (i.e., nominal or ordinal), and to be consistent with prior research using the HSLS:09 data (Duppong Hurley et al., 2017, 2019), we used the WLSMV estimator to fit the SEM model. Each structural parameter was evaluated for statistical significance at the .001 alpha level. Standardized structural coefficients are reported in the results, "fully standardized" coefficients (STDYX) when both the predictor and the outcome were continuous variables (e.g., school communication predicting ninth-grade GPA), and coefficients "standardized on Y" (STDY) when the predictor was dichotomous and the outcome was continuous (e.g., at-risk predicting ninth-grade GPA). Missing data were excluded using a pairwise-present approach as is the default when using WLSMV.

Weights. Because the HSLS:09 used a complex survey design where students were sampled using a two-stage process in which schools were first sampled and then students were sampled from the participating schools, analytic and replicate weights are needed to account for the complex sampling design when analyzing the data. We used the weights developed for the parent-supplied family and home contextual data because most of the variables included in the analysis were collected from parents.

The analytic weights (i.e., sampling weights) were used to adjust for the conditional probability of selection and nonresponse. Analytic weights adjust for (a) the probability of the student's high school being included in the sample,

(b) the stratified student sampling design, and (c) nonresponse due to parental refusal or student refusal. Balanced repeated replication (BRR) weights were used for variance estimation (i.e., calculating standard errors). BRR is a resampling method used to calculate standard errors while accounting for the complex design of the study (e.g., two-stage sampling and nonindependence of observations).

Model fit. A good-fitting model accurately represents the observed data, and a good-fitting model is a prerequisite for interpreting the structural parameters. However, Mplus v7.4 does not compute a chi-square statistic or any of the alternative fit indexes (AFIs), such as the root mean square of the error of approximation (RMSEA) or the comparative fit index, when complex survey data are used with BRR standard error estimation. Model fit was, therefore, evaluated using a two-step method developed by Stapleton (2008) where (a) a "conventional" SEM was estimated (using only the sampling weights) to obtain the chi-square statistic and (b) the same model was fit again using the BRR weights. The chi-square statistic was then adjusted for the sampling information included in the BRR weights using the equation given by Stapleton (2008, eq. 5, p. 197). The adjusted chi-square statistic was used to compute RMSEA—the only AFI directly computed from the model chi-square statistic. A nonsignificant chi-square statistic indicates a close fit to the data, but the chi-square test tends to be overly sensitive to large samples and complex models. RMSEA values <.05 indicate a close fit to the data (Hu & Bentler, 1999). The 90% confidence interval (CI) was also computed for the RMSEA statistic.

Results

The structural equation model converged without any estimation errors. The model fit statistics were as follows: $\chi^2_{(349)} = 4{,}916.13$ ($p < .001$) and RMSEA = 0.032 [90% CI = 0.032, 0.033]. The chi-square statistic indicated a misfit to the data, which was not unexpected given that the sample was large. However, RMSEA—the absolute misfit per degree of freedom—indicated a close fit to the data. Given that there was limited information available to evaluate the fit of SEMs when using complex survey data with replication weights, the available information for this model seemed to suggest that the model-data fit was acceptable.

Research Aim 1: Elevated EBR Status Predicting Parental Involvement

Table 1 reports the standardized regression coefficients, BRR standard errors, and the *p* values for each of the structural paths examining differences in parental involvement between students with elevated EBR and students in the comparison group. Levels of parental involvement significantly differed between students with EBR and the comparison sample for four of the six latent factors: school activities ($\beta = -0.365$, $p < .001$), child communication ($\beta = -0.303$, $p < .001$), academic aspirations ($\beta = -0.772$, $p < .001$), and home activities ($\beta = -0.307$, $p < .001$). Standardized regression coefficients, representing standardized mean differences between students with EBR and the comparison group, ranged from −.303 to −.772 for the four statistically significant latent factors indicating that parental involvement in these four domains was between .303 and .772 standard deviation *lower* for families of students with elevated EBR. Standardized regression coefficients were .097 and −.123 for the school communication and homework parental involvement factors, respectively, indicating small and nonsignificant differences between the two groups of students.

Table 1. Elevated EBR Predicting Parental Involvement.

Outcome	Coef.	BRR *SE*	*p* value
School communication	.097	0.064	.130
School activities	−.365	0.046	<.001
Child communication	−.303	0.054	<.001
Academic aspirations	−.772	0.066	<.001
Home activities	−.307	0.060	<.001
Homework	−.123	0.047	.009

Note. BRR = Balanced repeated replication; EBR = emotional and behavioral risks;

Research Aim 2: Parental Involvement Predicting Academic Outcomes

Table 2 reports the standardized regression coefficients, BRR standard errors, and the *p* values for each of the structural paths examining the relations between parental involvement and academic outcomes (i.e., grade point average and mathematics assessment score). Five of the six latent parental involvement factors significantly predicted GPA and mathematics assessment scores while controlling for the set of covariates. The only parental involvement factor that did not significantly predict academic outcomes was school communication. Standardized regression coefficients for the statistically significant effects ranged from .095 to .420 for GPA and from .093 to .449 for mathematics assessment scores. For each of the statistically significant regression coefficients, a greater level of parental involvement was associated with higher academic achievement. Academic aspirations demonstrated the strongest relation to both GPA and mathematics assessment scores—this factor accounted for 40.7% of the explained variance for GPA and 51.6% of the explained variance for the math assessment scores.

Table 2. Parental Involvement Predicting Academic Outcomes.

	Coef.	BRR *SE*	*p* value
GPA			
School communication	.008	0.030	.777
School activities	.253	0.018	<.001
Child communication	.223	0.017	<.001
Academic aspirations	.420	0.026	<.001
Home activities	.200	0.028	<.001
Homework	.095	0.019	<.001
Mathematics assessment			
School communication	.055	0.030	.068
School activities	.180	0.018	<.001
Child communication	.212	0.019	<.001
Academic aspirations	.449	0.027	<.001
Home activities	.185	0.022	<.001
Homework	.093	0.021	<.001

Note. BRR = Balanced repeated replication; GPA = grade point average.

Table 3. Total, Direct, and Indirect Effects of Elevated EBR.

	Coef.	BRR *SE*	*p* value
GPA			
Total effect	−.807	0.053	<.001
Direct effect	−.251	0.069	<.001
Indirect effect	−.556	0.050	<.001
Mathematics assessment			
Total effect	−.541	0.047	<.001
Direct effect	−.002	0.059	.974
Indirect effect	−.539	0.053	<.001

Note. BRR = Balanced repeated replication; EBR = emotional and behavioral risks; GPA = grade point average.

Research Aim 3: Total, Direct, and Indirect Effects of Elevated EBR Status on Academic Outcomes

Table 3 lists the total, direct, and indirect effects of elevated EBR status on the academic outcomes that are expressed as standardized regression coefficients. The total effect of elevated EBR status was −0.807 and −0.541 for GPA and mathematics assessment scores, respectively. These values indicate that students with EBR had significantly lower achievement on both outcome measures—the total effect represents the difference (in *SD* units) between students with elevated EBR and the comparison sample as if academic outcomes were regressed only on EBR status and the covariates (path *c* from Figure 2).

After accounting for differences between the two groups of students in terms of parental involvement, the direct effects (path *c′* from Figure 2) of elevated EBR status were statistically significant for GPA ($\beta = -0.252$, $p < .001$) but not significant for the mathematics assessment scores ($\beta = -0.002$, $p = .974$). In both cases, the direct effects were considerably smaller than the total effect of EBR status suggesting that if parental involvement were equivalent between the two groups of students, the observed achievement gap would be substantially smaller or even nonsignificant (in the case of the math assessment scores).

The overall indirect effects of elevated EBR were statistically significant for both GPA and the mathematics assessment scores. This indicates that a significant portion of the total effect of elevated EBR status on academic outcomes was indirectly transmitted through parental involvement. In the case of GPA, 68.9% of the total effect (i.e., the achievement gap) was attributable to differences in parental involvement, and in the case of the mathematics assessment scores, 99.6% of the total effect was attributable to differences in parental involvement.

Table 4 lists the specific indirect effects for each domain of parental involvement. As expected, school communication did not contribute to the overall indirect effect because it did not significantly differ between the two groups of students, and it was not significantly related to academic outcomes. The homework domain also did not contribute significantly to the overall indirect effect because it did not significantly differ between the two groups of students, and it was only modestly related to academic outcomes. The other four domains of parental involvement did significantly contribute to the overall indirect effect.

As noted previously, academic aspirations was the domain in which the largest difference was observed between students with elevated EBR and the comparison group; it was also the domain that demonstrated the strongest association with academic achievement. As such, it necessarily had to be the domain through which the majority of the indirect effect was transmitted. For GPA, approximately 58% of the overall indirect effect was related to academic aspirations, which means that 40.1% of the achievement gap (i.e., the total effect) was attributable to differences in academic aspirations. For the mathematics assessment scores, slightly more than 64% of the overall indirect effect was related to academic aspirations, which means that 63.9% of the achievement gap (i.e., the total effect) was attributable to differences in academic aspirations. Collectively, the remaining parental involvement factors (other than academic aspirations) accounted for 28.8% of the achievement gap for GPA and 35.7% of the achievement gap in mathematics.

Discussion

Decades of empirical research examining the role of parental involvement in school reveals strong yet mixed findings for secondary students (Hill & Tyson, 2009; Jeynes, 2007). Currently, very little information is known about how parental involvement in school for secondary students who display elevated EBR differs compared to those not at risk.

Table 4. Specific Indirect Effects of Elevated EBR.

	Coef.	BRR *SE*	*p* value
GPA			
School communication	.001	0.003	.797
School activities	−.092	0.013	<.001
Child communication	−.068	0.013	<.001
Academic aspirations	−.324	0.037	<.001
Home activities	−.061	0.015	<.001
Homework	−.012	0.005	.014
Mathematics assessment			
School communication	.005	0.004	.213
School activities	−.066	0.010	<.001
Child communication	−.064	0.013	<.001
Academic aspirations	−.346	0.038	<.001
Home activities	−.057	0.013	<.001
Homework	−.011	0.005	.014

Note. BRR = Balanced repeated replication; EBR = emotional and behavioral risks; GPA = grade point average.

Given the extant literature on the poor academic outcomes of this population (e.g., Bradley et al., 2008; Gage et al., 2017; Wagner et al., 2005; Wagner & Newman, 2012), and the importance of parental involvement in school, it is necessary to further examine the linkages between elevated EBR, parental involvement in education, and academic achievement. The goals of this study were to explore differences in parental involvement in school for ninth-grade students with elevated EBR and students without EBR as well as the extent to which differences in academic achievement between these two groups of students could be attributed to differences in a variety of parental involvement domains.

Elevated EBR Predicting Parental Involvement

The first purpose of this study was to determine the extent to which parental involvement differed between students with elevated EBR and those in a comparison group. We found substantially lower levels of parental involvement for ninth-grade students with elevated EBR compared to students without EBR for four of the six parental involvement factors: school activities, child communication, academic aspirations, and home activities. The lower participation in school activities corresponds to prior research on youth receiving special education services for EBR which found lower rates of parental involvement behaviors, such as attendance of a school or class event and volunteering at school (Wagner et al., 2005). The finding that there were no significant differences for homework and school communication is interesting in light of findings that parents of students receiving special education services for EBR were more likely to help with homework and attend parent-teacher meetings (Newman, 2005; Wagner et al., 2005). It may be that the parents of students receiving special education services were even more involved in communicating with schools than the students with elevated EBR in this study. Future research needs to explore if parent–school communication was initiated more by parents or by school personnel (e.g., IEP meetings and the teacher calls home about student behavior). Previous research on secondary students with elevated EBR has not explored factors surrounding parent–child communication, home-based activities, and parental aspirations. Future research should explore these factors in greater detail to examine why parental involvement was lower for students with EBR than in the comparison group. Future research should also examine the similarities of the elevated EBR and comparison group on school–parent communication and perceived ability to help with homework.

Parental Involvement Predicting Academic Outcomes

Overall, there is considerable support for parental involvement in school for secondary students predicting higher academic achievement (e.g., Hill & Tyson, 2009; Jeynes, 2007). Yet, few studies have examined the role of different parental involvement conceptualizations on the academic achievement of high school students (i.e., Wang et al., 2014; Wang & Sheikh-Khalil, 2014). Using a six-factor conceptualization of parental involvement, we found that five of the six parental involvement domains were significant predictors of GPA and mathematics achievement. Parental academic aspirations demonstrated the strongest relation to both GPA and mathematics assessment scores. The importance of parental aspirations was consistent with prior research (e.g., Catsambis, 2001; Fan & Chen, 2001; Yan & Lin, 2005) indicating that parents' educational goals for their child predict their future education and occupation. School activities, parent–child communication about education, and home activities each had smaller but substantial effects on GPA and mathematics achievement. This suggests that schools may want to consider helping parents foster conversations with their child about their educational future and activities to encourage educational activities at home. Although home-based activities are a focus in early childhood (Graves & Brown Wright, 2011), these findings suggest that it remains important in adolescence. Developing strategies to help parents continue to support their child's educational interests from home and via conversations is an important avenue for future intervention development (Wang et al., 2014). It is interesting that school–parent communication, which included activities such as conferencing with teachers and talking to school counselors, was not predictive of academic achievement. Perhaps this was because in high school there are limited opportunities for this to occur, especially with multiple teachers each semester. It is also uncertain how parents defined school counselors, from guidance counselors that help all students select high school coursework to therapists. Furthermore, it is uncertain who

initiated such conversations, parents or school personnel. It may also be that rates of such conversations were perceived as routine, regardless of elevated EBR. Future research is needed to explore reasons as to why school–parent communication may not be predictive of academic achievement.

Effects of Elevated EBR on Academic Outcomes

In addition to varying levels of parental involvement, findings from this study indicated significant differences in academic achievement between students with elevated EBR and those in the comparison group. More specifically, students with elevated EBR had a mean GPA that was .807 *SD* lower than the comparison group, and a mean mathematics assessment score that was .541 SD lower. Both effects represent a considerable gap in academic achievement between high school students in the two groups, which is similar to the achievement gap that has been documented for students identified with EBD (Bradley et al., 2008; Gage et al., 2017; Trout et al., 2003).

Although the achievement gap between secondary students with elevated EBR and the comparison group was large, the indirect effects of EBR status on academic outcomes were illuminating. Findings indicated that after accounting for parental involvement, there was no longer a difference in mathematics assessment scores, and the difference in GPA was substantially smaller (.807 vs. .251 *SD*s). More specifically, the SEM results suggest that if parental involvement across all six domains was equivalent between the two groups of students, then the achievement gap could potentially be reduced by 68.9% for GPA and 99.6% for mathematics. This appears to be clear and compelling evidence that interventions targeting parental involvement for students with elevated EBR could have the potential for substantial impact.

When examining how the specific domains of parental involvement contributed to the indirect effects, findings highlighted that parents' academic aspirations accounted for the majority of the overall indirect effect. For this study, parental aspirations were focused on questions about whether the parent (during their child's ninth-grade school year) believed their child would obtain a bachelor's degree and how far they would go academically. Given how academic aspirations is defined within models of parental involvement, it may be that it is a proxy for (or at least substantially informed by) students' prior academic achievement. Indeed, parents likely have a strong understanding of their child's academic skills and performance. Thus, this domain of parental aspirations is likely intertwined with knowledge of current academic abilities. It would be helpful if future research could include academic performance in previous years as well as multiple assessments of parental involvement in school over time to disentangle the potentially reciprocal effects between parental educational aspirations and academic achievement. For example, Froiland and colleagues (2013) found that parental aspirations for their child in Kindergarten demonstrated a significant indirect effect on eighth-grade achievement. It would be helpful to conduct additional longitudinal studies to replicate and extend these findings incorporating academic achievement, parental aspirations, and other dimensions of parental involvement assessments from elementary through secondary school. Such longitudinal studies would also allow for an examination of changes in parental involvement across multiple domains while considering the specific role of parental aspirations. Additional research could help the field understand if it is parents simply holding the belief that their child can succeed in academics that brings subsequent academic achievement or if parents with strong aspirations engage in other behaviors or activities to support their child's academic success (i.e., help their child to persevere in academic struggles, be more engaged in other parental involvement activities like talking to teachers, and encouraging their child's belief in their own potential).

The findings that other domains of parental involvement including school activities, parent–child communication about education, and home activities could potentially play an important role in reducing the achievement gap for students with elevated EBR is in line with the findings for the general population regarding the role of parental involvement in school and educational outcomes (e.g., Hill & Tyson, 2009; Wang et al., 2014; Wang & Sheikh-Khalil, 2014). Specifically, Wang and Sheikh-Khalil (2014) found that home involvement and academic socialization in the 10th grade predicted academic achievement in the 11th grade. Another study of high school students found an overall decline in academic achievement from 7th to 11th grades but discovered that parental involvement efforts focused on improving frequency and quality of school communication, the structure at home, supporting adolescent independence, and linking education to future success served as a buffer to that normative decline (Wang et al., 2014). We found that when only considering the domains of school activities, home-based activities, and parent–child communication, the achievement gap for students with elevated EBR could be reduced by 28.8% for GPA (.575 vs. .807 *SD*s) and 35.7% for the mathematics assessment (.348 vs. .541 *SD*s) if involvement in those domains were equivalent between the two groups of students. It is promising that the role of these parental involvement factors is consistently important for students in the general population as well as students with EBR and suggests that strategies to improve parental involvement in these domains for students in the general population may also be relevant to students with elevated EBR. Future research is needed to explore which specific aspects of participating in school activities, parent–child communication about education, and family learning

activities are most influential of academic achievement and begin to explore potential interventions to help parents improve their involvement with school.

Limitations

Although this study attempted to be comprehensive, there are several limitations that should be noted. This study was able to include parental involvement items across school-based, home-based, and academic socialization domains; however, the constructs were limited to a few items. Future research would benefit from a more detailed assessment of parental involvement. For example, this study only included parental confidence in being able to help with homework and not how parents help their child or if they are responding to requests from their child for assistance versus just making sure that homework is completed. Furthermore, it would be helpful to assess parental involvement in high school from the perspectives of both parents and teens. Although the academic outcomes in this study (i.e., GPA and mathematics achievement) are relevant and have been frequently used in previous studies, this study was limited to the academic variables included in the secondary data set. Therefore, future research may benefit from examining additional academic outcomes. This includes examining measures of prior academic performance as well as other determinants of academic achievement. Likewise, it is important to collect measures of parental involvement concurrently with each measure of academic achievement to be able to model the cross-lag reciprocal effects between the two factors because both factors are assumed to be endogenous in this context. Unfortunately, this secondary data set did not have school-collected variables to determine whether a student was receiving special education services for any eligibility category including (a) Emotional Disturbance/Emotional or Behavioral Disorder or (b) Other Health Impairment due to EBR. Future studies should replicate these findings with a sample of secondary students receiving special education services for emotional disturbance or other health impairments due to EBR. Future research could also benefit from longitudinal studies to examine how different domains of parental involvement in education changes over time and how that change over time relates to academic outcomes. In addition, it would be useful to include other variables related to academic achievements such as student engagement in school, course enrollment (e.g., AP courses and traditional courses), or involvement in extracurricular activities.

Conclusion

Although there is considerable evidence that parental involvement in school is important for student academic performance (Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2003, 2005, 2007, 2012; Patall et al., 2008), less is known about how parental involvement influences the academic performance of high school students with elevated EBR. This study demonstrated that parental involvement for ninth-grade students with elevated EBR was substantially lower than for students without EBR in the areas of participation in school activities, home-learning activities, discussing education topics with their child, and academic aspirations. There was also a clear set of significant relations between those same four domains of parental involvement and academic achievement as measured by GPA and a standardized mathematics assessment. Taken together, these findings highlight the important role that parental involvement could play in narrowing the achievement gap between students with elevated EBR and students without EBR. The results suggest that if intervention strategies are able to target and increase parental involvement for students with elevated EBR to levels equivalent to students without EBR, then the achievement gap could be substantially reduced. It is important to note that a large portion of this overall indirect effect was attributable to the role of parental academic aspirations, which is highly likely intertwined with the parent's assessment of their child's past and present academic abilities. Despite this possible confound, the link between parental involvement and academic achievement of secondary students with elevated EBR remains substantial. These findings support additional research on strategies to improve parental involvement in schools to reduce the academic achievement gap for high school students with elevated EBR.

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ORCID iD

Stacy-Ann January https://orcid.org/0000-0001-9483-4214

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