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### Authors

Morgan, Paul

Farkas, George

Woods, Adrienne

et al.

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## Factors Predictive of Being Bullies or Victims of Bullies in US Elementary Schools

Paul L. Morgan<sup>1</sup>, George Farkas<sup>2</sup> [Emeritus Professor], Adrienne D. Woods<sup>3</sup>, Yangyang Wang<sup>1</sup>, Marianne M. Hillemeier<sup>4</sup> [Emeritus Professor], Yoonkyung Oh<sup>5</sup>

<sup>1</sup>Department of Education Policy Studies, Penn State, University of Texas Health Sciences Center at Houston

<sup>2</sup>School of Education, University of California, Irvine, University of Texas Health Sciences Center at Houston

<sup>3</sup>Education Division, SRI International, University of Texas Health Sciences Center at Houston

<sup>4</sup>Department of Health Policy and Administration, Penn State, University of Texas Health Sciences Center at Houston

<sup>5</sup>Department of Pediatrics and Children's Learning Institute, University of Texas Health Sciences Center at Houston

### Abstract

We analyzed a population-representative cohort ( $N=13,611$ ;  $M_{age}$  at kindergarten, first, and second grade = 67.5, 79.5, and 91.5 months, respectively) to identify kindergarten to second grade factors predictive of being bullies or victims during third to fifth grade. We did so by estimating a block recursive structural equation model (SEM) with three sets of predictors. These were: (a) individual and school socio-demographics; (b) family distress and harsh parenting; and (c) individual behavior and achievement. Relations between each of the included variables and the bullying outcomes were simultaneously estimated within the SEM. Thus, each variable served as a control for estimating the effects of the other variables. We used robust standard errors to account for student clustering within schools. Results indicated that externalizing problem behavior strongly predicted being a bully ( $[ES] = .56, p < .001$ ) and a victim ( $ES = .29, p < .001$ ). We observed a negative relation between being Hispanic and being a victim ( $ES = -.10, p < .001$ ) and a positive relation between being Black and being a bully ( $ES = .11, p < .001$ ). We also observed statistically significant relations between a family's socioeconomic status and being a bully ( $ES = -.08, p < .001$ ) as well as school poverty and being a victim ( $ES = .07, p < .001$ ). The results advance the field's limited understanding of risk and protective factors for bullying perpetration or victimization during elementary school and provide additional empirical support for assisting young children already exhibiting externalizing problem behaviors.

## Keywords

Bullying; victimization; externalizing problem behaviors; academic achievement; longitudinal

Being a bully or victim of bullying is characterized by frequently engaging in or experiencing unwanted aggressive or negative actions (e.g., hitting, pushing, spreading lies, teasing, calling names) resulting from an observed or perceived power imbalance (Gladden et al., 2014). About one-third of children experience bullying perpetration or victimization (Jansen et al., 2012; Modecki et al., 2014). Children who are bullies or victims are more likely to experience academic, behavioral, and social-emotional struggles during school (Schoeler et al., 2018; Sigurdson et al., 2015) as well as delinquency, depression, anxiety, panic disorders, suicidality, psychotic experiences, antisocial behavior, substance abuse, economic hardship, and poor quality of life during adulthood (Arseneault, 2018; Takizawa et al., 2014; Wolke et al., 2013; Zarate-Garza et al., 2017). Bullying's sequelae result in substantial societal costs including increased mental health service expenditures (Jadambaa et al., 2020). Evidence-based screening and intervention efforts delivered during elementary school may prevent children from experiencing bullying perpetration or victimization's sequelae (Kljakovi & Hunt, 2016; Oncioiu et al., 2020; Wolke et al., 2013; Wolke et al., 2014).

## Extant Work's Limitations

Yet empirical evidence of factors predictive of being bullies or victims during elementary school is currently limited and inconsistent (Ettekal & Ladd, 2017; Hemphill et al., 2012; Kljakovic & Hunt, 2016; Oncioiu et al., 2020). The National Academies of Sciences, Engineering, and Medicine ([NASEM], 2016) has called for research using data collected from nationally representative samples of school-aged children and analyses to identify explanatory factors for being bullies or victims. Such research would help inform bullying screening and prevention efforts. Bullying screening and prevention efforts are more effective when delivered by the elementary or middle school grades (Yeager et al., 2015).

Existing studies analyzing samples of U.S. elementary schoolchildren have examined the transition to middle school (Espelage et al., 2015; Haltigan & Vaillancourt, 2014), used no or minimal statistical controls (Fogler et al., 2020), use cross-sectional or short-term (e.g., one year) longitudinal designs (Lebrun-Harris et al., 2020; Morales et al., 2019), analyzed convenience and/or non-U.S. samples (Ettekal & Ladd, 2017; Jansen et al., 2016; Ladd et al., 2017; Oncioiu et al., 2020; Pouwels et al., 2019; Rambaran et al., 2020), or have been unable to identify risk or protective factors as early as kindergarten (Košir et al., 2019; Zhang et al., 2019). Existing studies of bullying perpetration or victimization have mostly analyzed older samples (Haltigan & Vaillancourt, 2014; Hemphill et al., 2012; Lereya et al., 2015; National Center for Education Statistics, 2019; Zych et al., 2020). Kljakovic and Hunt's (2016) meta-analysis of 19 studies of risk and protective factors for bullying perpetration and victimization were based on a median sample size of 696 adolescents.

Most available studies primarily focus on victimization (NASEM, 2016). About 70% of studies reporting risk and protective factors for bullying and victimization were reported to

make no, inadequate, or unclear adjustments for confounding (Kljakovic & Hunt, 2016). Unadjusted risk and protective factor estimates may be misdirecting interventions (Moore et al., 2017). Although there is “a robust association between bullying victimization in childhood or adolescence and poor academic achievement,” (Moore et al., 2017, p. 69), nine of 10 (90%) of the meta-analyzed studies were cross-sectional. Whether confounds including lower behavioral self-regulation explain achievement’s association with bullying perpetration or victimization is unclear (Nakamoto & Schwartz, 2010). Most available studies also report general associations between externalizing or internalizing problem behaviors and bullying victimization (Reijntjes et al., 2010; Reijntjes et al., 2011). Whether and to what extent these problem behaviors increase the risks specifically for being bullies or victims is less clear (Kljakovic & Hunt, 2016; NASEM, 2016; Oncioiu et al., 2020). Studies examining parenting’s association with bullying perpetration or victimization are mostly cross-sectional (Nocentini et al., 2019).

Structural equation modeling (SEM) of a nationally representative sample of U.S. elementary schoolchildren would clarify whether and to what extent exogenous individual and family socio-demographic and school contextual factors relate to bullying perpetration or victimization directly and indirectly through their associations with parenting, academic achievement, externalizing and internalizing problem behaviors, or self-regulation (Hong & Espelage, 2012; Shetgiri et al., 2010). The few studies currently available that used SEM to analyze data collected from U.S. elementary students have analyzed small convenience samples of limited diversity that constrain generalizability (Brendgen & Poulin, 2018; Dumas & Midgett, 2019). How individual and family socio-demographic characteristics, school contextual factors, parenting, and children’s academic and behavioral functioning directly and indirectly predict being bullies or victims across elementary school is currently unclear (Turns & Sibley, 2018).

## **Theoretical Framework and Hypothesized Explanatory Factors of Being Bullies or Victims**

We used social ecological theory (SET) to investigate factors predictive of being bullies or victims in U.S. elementary schools (Hong & Espelage, 2012). Theoretically, children’s risks for being bullies and victims are explained by their individual traits, their immediate physical and social environments, and by the interactions of systems within these environments (Hong et al., 2019; Hong & Espelage, 2012). Exogenous socio-demographic factors (e.g., the family’s economic and educational resources) should relate to children’s risks for being bullies or victims by influencing the quality of parenting that they receive as well as the children’s own academic and behavioral functioning. Within a SET theoretical framework, explanatory factors of being bullies or a victims may include the quality of parenting that children receive, their own academic achievement, externalizing and internalizing problem behaviors, and behavioral self-regulation, and the racial, ethnic, and economic composition of their schools (Cook et al., 2010; Hemphill et al., 2012; Košir et al., 2019; Mundy et al., 2017; Nocentini et al., 2019; Oncioiu et al., 2020; Pouwels et al., 2019). Additional contextual risk factors may include children’s exposure to harsh

parenting, deviant peers, unsupportive teachers, and household or neighborhood chaos (Lee et al., 2021).

Socio-demographic characteristics including race, ethnicity, language use, and economic resources should predict children's risks for being bullies or victims. Children who are Black have been reported to be at greater risk for being bullies and victims (Peskin et al., 2006), possibly due to greater rates of reactive aggression towards other children engaging in racist acts (Goldbach et al., 2018). Children who are emergent bilinguals may be at lower risk for bullying perpetration and victimization due to their greater bicultural competencies, enhanced flexibility in social-cognitive functioning, and relatively lower assimilation (Smokowski et al., 2009). Children of parents who are economically distressed, abusive, neglectful, or emotionally distant may develop maladaptive behaviors and so be more likely to be bullies and victims in elementary schools (Lereya et al., 2015).

Children's own behavioral and academic functioning may also predict their later risks for being bullies or victims. Children who frequently engage in externalizing problem behaviors are typically more physically or verbally aggressive towards other children and so experience lower social standing and greater peer rejection and retaliatory behaviors, which should result in greater risks for being bullies or victims over time (Cook et al., 2010; Elliott et al., 2019; Etekal & Ladd, 2017, 2020; Lebrun-Harris et al., 2019; Oncioiu et al., 2020; Pouwels et al., 2019; Reijntjes et al., 2011). Children who are anxious, lonely, or socially withdrawn may be perceived as timid and fearful and so experience greater victimization by aggressive peers over time (Pouwels et al., 2019; Reijntjes et al., 2010).

Academic struggles may contribute to greater frustration, antisocial behaviors, and lower social standing (Morgan et al., 2012) and so lead to a greater risk for being either bullies or victims (Mundy et al., 2017). Children who are better able to self-regulate their learning-related behaviors (e.g., attention, organization) may be less likely to be bullied (Pratt et al., 2014). Greater financial and emotional resources may help parents engage in more positive parenting behaviors (e.g., warmth, cognitive stimulation, engagement) that lead children to adopt better coping strategies and so lower their risks for being bullies or victims (Shetgiri et al., 2013).

Theoretically, school contexts should predict children's risks for being bullies or victims. Well-resourced and socially supportive schools should promote socialization and so lessen bullying victimization (Hong et al., 2019; Oriol et al., 2017; Yang et al., 2018) including by increasing access to adults who intervene between offenders and targets (Gage et al., 2014; Låftman et al., 2016). Children attending under-resourced schools may be more likely to be bullies to gain status, particularly among deviant peers engaging in abusive behaviors (Grant et al., 2019; Salmivalli, 2010). Children attending under-resourced schools may also be more likely to be victims of bullies because these schools have less effective behavioral management practices and fewer qualified teachers (Azeredo et al., 2015).

## Study's Purpose and Structural Equation Model

We examined whether and to what extent individual and family socio-demographic characteristics, parental stress, school contexts, and children's academic achievement, externalizing and internalizing problem behaviors, and behavioral self-regulation in kindergarten to second grade predicted their risks for being bullies or victims during third to fifth grade. Figure 1 displays the study's conceptual SEM and hypothesized causal pathways. In this block recursive model, exogenous individual, family, and school socio-demographic characteristics lead to parental stress and harsh parenting during kindergarten to second grade. These in turn explain children's levels of academic achievement, internalizing and externalizing problem behaviors, and behavioral self-regulation, which also increase their risks for being bullies or victims during third to fifth grade.

We estimated Figure 1's conceptual model, in which each variable within each box of the diagram received an arrow from each of the variables in all the causally prior boxes. (For example, the child's average score on being a bully across third to fifth grade is explained by all the variables in the three antecedent boxes of variables.) We believe that this is the first time that such an extensive set of predictors of bullying perpetration and victimization have been included in a SEM that allows the sign and relative strength of different pathway to be directly and indirectly assessed in analyses of a nationally representative sample of U.S. elementary schoolchildren. Doing so should provide an unusually comprehensive empirical investigation of the individual, family, and school factors within social ecological contexts that explain which children are most likely to be bullies or victims while attending U.S. elementary schools.

## Method

### Sample and Procedure

We analyzed the Early Childhood Longitudinal Study: Kindergarten Cohort of 2010-2011 (ECLS-K: 2011), a dataset maintained by the National Center for Education Statistics (NCES). The ECLS-K: 2011 followed a nationally representative cohort of more than 18,000 U.S. elementary schoolchildren from the fall of kindergarten until the spring of fifth grade. Up to 23 students were included from each of 1,319 participating kindergarten schools, and annual survey responses were collected about their home, peer, and schooling experiences from parents, teachers, and administrators, and from students themselves beginning in 3<sup>rd</sup> grade. Additional information about the ECLS-K: 2011's design, procedures, and participation is available at <https://nces.ed.gov/ecls/kindergarten2011.asp>. We used individual and family socio-demographics, parental stress, and children's achievement and behavioral functioning measured across kindergarten to second grade to predict both bullying and victimization scores averaged across third to fifth grade. We received institutional review board approval for the study's analyses.

### Measures

**Exogenous Socio-demographic Characteristics**—Exogenous individual and family socio-demographics included children's biological sex, race or ethnicity (coded as White,

Black, Hispanic, or Other), family's socioeconomic status (SES), unmarried parent, and whether English was not the primary language spoken in the home as an indicator of children's status as English language learners (ELL). The SES variable, which we standardized to  $M = 0$  and  $SD = 1$ , was constructed by ECLS-K: 2011 staff from kindergarten parent/guardian-reported education level, occupation, and household income. We included two measures of school racial, ethnic, and socioeconomic composition. These were percentage of non-White children in a school and the school percentage of children eligible for free or reduced lunch. Both measures were reported by the school administrator in the spring of kindergarten and were standardized to  $M = 0$  and  $SD = 1$ .

**Parental Stress**—We included six constructed measures capturing a range of parenting attitudes and behaviors using parental self-report.

**Parental Warmth.:** We measured parental warmth using a standardized scale that averaged together four items ( $\alpha = .65$ ) measured in the spring of kindergarten that asked to what extent parents showed affection with their child. Parents indicated that the following statements were completely true, mostly true, somewhat true, or not at all true: “My child and I often have warm, close times together,” “Most of the time I feel that my child likes me and wants to be near me,” “Even when I’m in a bad mood, I show my child a lot of love,” and “I express affection by hugging, kissing, and holding my child.”

**Parental Stress.:** We measured parental stress using a standardized scale that averaged together four items ( $\alpha = .56$ ) in the spring of kindergarten indicating the extent to which parents felt stressed about parenting. Responses to the following questions were evaluated on the same 4-point scale as the parental warmth items: “Being a parent is harder than I thought it would be,” “My child does things that really bother me,” “I find myself giving up more of my life to meet my child’s needs than I ever expected,” and “I often feel angry with my child.” Prior research has separated parental warmth and parental stress into two factors given that positive versus negative parenting attitudes may differentially predict academic or cognitive outcomes (Ogg & Anthony, 2020).

**Harsh Parenting.:** We standardized and summed three items measuring unusually negative discipline practices. The first item was created by summing and standardizing four binary measures asking how the parent would react if their child got so angry that they physically hit their parent (spank them, hit them back, make fun of them, or yell at or threaten them). This variable was then summed with two additional standardized measures indicating whether the parent ever spanked their child (yes/no) and how frequently they had spanked their child in the past week. (We recoded continuous response options to “Not at all,” “Once,” “2-4 times,” or “5 or more times” to reduce skew prior to being  $z$ -scored.) The final measure can be construed as a standardized index of how often parents engaged in these practices.

**Depression.:** We measured depression using an average of 12 parent-reported items measured in the spring of kindergarten that were derived from the widely used Center for Epidemiologic Studies Depression Scale (CES-D). The original CES-D displayed high internal consistency in the general population ( $\alpha = .85$ ) and correlated well (.69 to .75) with



clinical assessments of treated patients (Radloff, 1977). The 12 items included in shortened CES-D assessment were selected based on a factor analysis conducted in a national U.S. sample (Duarte et al., 2012; Ross et al., 1983). This assessment has been used in other large national studies (e.g., Poulin et al., 2005). The measure assessed depressive symptomology during the past week (e.g., being unusually bothered by trivial things, poor appetite, feeling blue, trouble concentrating). Possible values for this assessment ranged from 0-26,  $\alpha = .86$ ).

**Food Insecurity.:** Food insecurity was measured in the spring of kindergarten and first grade. Parents responded to 18 food security questions developed by the USDA through factor analysis of the 1995 CPS Food Security Supplement (Bickel et al., 2000). The assessment measures household experiences relating to food insecurity and reduced food intake. Affirmative responses to these questions were summed and then Rasch transformed so that higher responses indicated more severe food deprivation (scores ranged from 1.4 to 13, with households not experiencing any food insecurity coded as 0). We averaged responses from kindergarten and first grade using pairwise deletion methods.

**Parental Isolation.:** We assessed for parental isolation using a standardized measure of the average of three items from the spring of first grade parent questionnaire. The three items indicated whether the parent had family or friends who would loan them cash if they needed it, whether there was a friend, relative, or neighbor that the parent could speak to if their child were having problems at school, and whether there was someone the parent could talk to if they have troubles or need advice. Response options were “Never true for you,” “Sometimes true for you,” or “Always true for you.”

### Student Characteristics

**Academic Achievement.:** The ECLS-K: 2011 includes individually administered, untimed, and item-response theory-scaled (IRT) assessments of reading and mathematics achievement. The reading measure assessed skills such as print familiarity, letter recognition, beginning and ending sounds, recognition of common words, decoding multisyllabic words, vocabulary knowledge, and reading comprehension. To maximize the validity of the assessment, its content was based on reading frameworks from the National Assessment of Educational Progress (NAEP), selected state standards, and Common Core State Standards (Najarian et al. 2019). Weighted reliability scores for the reading assessments were .92 and .94 in the fall and spring of kindergarten, .95 in both fall and spring of first grade, .91 in the fall of second grade, .90 in the spring of second grade, .86 in the spring of third grade, .87 in the spring of fourth grade, and .86 in the spring of fifth grade (Najarian et al. 2019).

The mathematics measure assessed conceptual knowledge, procedural knowledge, and problem solving. Both measures involved 18 routing items administered to all children. Depending on children’s scores on these items, they were subsequently administered questions of either low, middle, or high difficulty. As with the reading assessment, the mathematics assessment was based on recognized external benchmarks including reading frameworks from the National Assessment of Educational Progress (NAEP), selected state standards, and the National Council of Teachers of Mathematics (Najarian et al., 2019).



Weighted reliability scores for the mathematics assessments were .92 and .93 in the fall and spring of kindergarten, .93 in both fall and spring of first grade, .93 in the fall of second grade, .94 in the spring of second grade, .92 in the spring of third grade, .91 in the spring of fourth grade, and .92 in the spring of fifth grade (Najarian et al. 2019).

Both reading and mathematics achievement measures were highly correlated at school entry. We recoded two outliers as missing (one reading value and one mathematics value) based on visual inspection of the data. We *z*-scored the reading and mathematics achievement measures at each grade. We then averaged these scores together using pairwise deletion methods to indicate general kindergarten to second grade academic achievement.

**Behavior:** Behavioral functioning was measured by a modified version of the psychometrically validated Social Skills Rating System (SSRS; Gresham & Elliot, 1990). The SSRS has been found to have a .85 test-retest correlation across 4 weeks (Gresham & Elliot, 1990). We used subscales of externalizing and internalizing problem behaviors and behavioral self-regulation. Items were rated by teachers on a 4-point scale ranging from “never” to “very often.” The Externalizing Problem Behaviors subscale consisted of five items indicating aggressive or impulsive behaviors (e.g., argues, fights, acts impulsively, gets angry). The Internalizing Problem Behaviors subscale consisted of four items indicating anxious or withdrawal behaviors (e.g., is the child lonely, sad, or anxious). The Approaches to Learning subscale consisted of seven items assessing how often children displayed behavioral self-regulation (e.g., works independently, easily adapts to changes in routine). The internal consistency reliability coefficients for subscales from kindergarten to second grade ranged from  $\alpha = .86-.88$  for externalizing,  $\alpha = .76-.79$  for internalizing, and  $\alpha = .91$  at all timepoints for behavioral self-regulation. We averaged each subscale across kindergarten through second grade using pairwise deletion methods.

### **Bullying Perpetration and Victimization**

**Bullying:** Consistent with previous bullying research (e.g., Jansen et al., 2016; Elliott et al., 2019), we used teacher ratings to identify children who were bullying others. Children are believed to be less willing to self-report bullying others on school surveys because of social desirability bias and to avoid being disciplined by their teachers (Totura et al., 2009). They may also fail to perceive relevant experiences as victimization (Connell et al., 2019). Elementary school teachers are considered appropriate assessors of bullying. This is because they spend many hours working with the same children, and are often called upon to identify children who need intervention to improve social and emotional skills in the context of school-wide efforts to promote safety and wellbeing (Elliott et al., 2019).

Four items were adapted for use in the ECLS-K based on a psychometrically validated scale of specific bullying behaviors (Espelage & Holt, 2001). In the spring of third, fourth, and fifth grade, teachers were asked to indicate how often each child had (a) “teased others, made fun of others, or called others names?” (b) “left others out from playing with them on purpose?” (c) “told lies or untrue stories about others?” and (d) “pushed, shoved, slapped, hit, or kicked others?” during this school year. These items measured (a) verbal, (b) social, (c) reputational, and (d) physical bullying. Responses ranged from “never” to “very often”

based on a 5-point scale. The four items loaded onto a common factor in both exploratory and confirmatory factor analyses (Cronbach's  $\alpha = .88$ ; Espelage & Holt, 2001) and had good reliability among middle schoolers (e.g., Cronbach's  $\alpha = .79-.80$ ; Rose et al., 2015). These items also loaded onto a common bullying factor with high reliabilities at each grade in the ECLS-K: 2011 (.89, .90, and .90 in third, fourth, and fifth grade, respectively). We averaged together all available data for each of the four items across third to fifth grade using pairwise deletion of missing values (i.e., if the child's teacher responded to items in third and fourth grade but not in fifth grade, the bullying measure averaged together the third and fourth grade responses while ignoring the missing fifth grade items). We then *z*-scored this general bullying variable to a *M* of 0 and a *SD* of 1.

**Victimization.:** We used self-reports to identify children being victimized. Children are more sensitive to victimization than teachers or parents (Averdijk et al., 2016) and self-report is considered a valid indicator (Bradshaw, 2015). Victimization self-report shows both consistency and predictive validity with cross-informant behavioral measures (Averdijk et al., 2013). Teachers and parents may underreport victimization including of behaviors resulting in social exclusion because "individual experiences at school and with friends are better known to students than to their teachers or parents" (Rupp et al., 2018, p. 464).

In the spring of third, fourth, and fifth grade, children were administered the same four items and self-reported how often they were teased, how often others told lies or untrue stories about them, how often they were pushed, shoved, slapped, hit, or kicked by others, and how often they were intentionally left out from playing with others. The items also displayed good reliability in the ECLS-K: 2011 (Cronbach's  $\alpha = .79-.80$ ). We averaged together all available data for each of the four victimization items across third to fifth grade using pairwise deletion of missing values and *z*-scored this measure to create a general victimization variable.

### Statistical Analyses

Data were cleaned in Stata v. 14.1 and analyzed in Mplus v. 8.0. We used full information maximum likelihood (FIML) in our analyses to adjust for missing values (sample  $N=13,611$ ). The average amount of missing data of the study's predictors was 6.8%. Bullying and victimization were missing the most observations at 24.4% and 27.5%, respectively. We would have retained 42% ( $n = 5,760$ ) of the full sample of  $N = 13,611$  under listwise deletion methods. We have no reason to believe that the data were not missing at random. Including an extensive set of sociodemographic, achievement, behavioral, and parenting variables such as those included in our analytic model under FIML leads to a reasonable assumption that any bias due to missingness is reduced for data missing at random. Table 1 displays descriptive statistics for both the analytic sample as well as the sample under listwise deletion methods. We standardized all continuous variables. Binary variables remained dichotomized.

We estimated Figure 1's fully block-recursive SEM in which bullying and victimization were each predicted by blocks of socio-demographic variables, achievement and behavior variables, and parenting variables. Parenting variables also predicted achievement and

behavior, and both blocks were predicted by the exogenous socio-demographic variables. We followed standard practice in estimating a model in which endogenous error terms within each block were allowed to correlate (Bollen, 1989). We used sampling weights to ensure the estimates were nationally representative of U.S. schoolchildren entering kindergarten in the fall of 2010 whose parents responded to the kindergarten questionnaires. We accounted for the nesting of students within schools by using cluster-robust standard errors (McNeish et al., 2017). We preregistered our coding and analytic decisions at <https://tinyurl.com/bullysem>. Appendix Tables A1 and A2 displays the full set of estimated coefficients with their standard errors.

## Results

### Descriptive Statistics

Table 1 displays descriptive statistics and value ranges for the analytic sample under FIML as well as under listwise deletion methods. We would have retained 5,760 cases (42%) from the analytic sample had we only used complete cases. Our sample also would have been skewed toward representing children who experienced less bullying and victimization and who were generally more advantaged (e.g., more children in the complete case sample were White, native English speakers, reported less food insecurity, did not have a single parent, and attended schools with lower proportions of nonwhite students or students receiving free lunch). Under FIML, our analytic sample was 52% male; 52% White, 13% Black, 25% Hispanic, and 10% another racial or ethnic identity; 17% English language learners; 28% raised by a single parent; and attended schools where, on average, 41% of the student body was non-White and 48% of the student body received free or reduced-price lunch. The constructed SES, parenting variables, behavior variables, and achievement variables were all within .05 *SD* of the full ECLS-K: 2011 sample mean.

Table 2 shows correlations among the variables. The continuous scores for being a bully and a victim of bullying correlated at .39. This correlation suggested that some U.S. elementary schoolchildren were both bullies and victims, consistent with prior work analyzing a non-U.S. sample finding that a bully-victim sub-type emerges by early childhood (Lereya et al., 2015). The largest correlation ( $r=.62$ ) was between externalizing behavior during kindergarten to second grade and being a bully during third to fifth grade. There was also a strong correlation ( $r=.37$ ) between externalizing problem behaviors and being a victim of bullying. These are preliminary indications that engaging in externalizing problem behaviors by kindergarten to second grade may be related to bullying perpetration and victimization during third to fifth grade. The other strong correlation was negative between behavioral self-regulation and bullying perpetration ( $r=-.45$ ). Behavioral self-regulation also correlated negatively with bullying victimization ( $r=-.32$ ).

### Direct Effects on Being Bullies or a Victims

Figure 2 displays results from our estimation of the fully recursive SEM in which (a) each variable was a function of all causally prior variables, (b) the exogenous variables were allowed to be correlated with one another, (c) and the error terms of all endogenous variables within the same box in the diagram were allowed to be correlated with one another. As

indicated in Appendix Table A1, the many significant correlations of error terms within each block of endogenous variables indicated the importance of allowing for these in the study's conceptual model. Model fit indices demonstrated good fit to the data (BIC = 565291, RMSEA = .034, CFI = .994, TLI = .897, SRMR = .009)

Most of the path coefficients measuring relations between variables are either non-significant or have very small effect sizes (ES). To focus on relatively more meaningful effects, Figure 2 displays results above an ES threshold with an absolute value of .05. An ES of .05 is considered a small effect size in educational research (Kraft, 2020).

The strongest relation was from externalizing problem behaviors during kindergarten to second grade to bullying perpetration during third to fifth grade. This coefficient was .56 ( $p < .001$ ), a very large ES. There was also a strong relation between externalizing problem behaviors and being a victim. This ES was .29 ( $p < .001$ ). Consistent with prior research (Kumpulainen et al. 1998), we observed that children who were already displaying externalizing problem behaviors during the primary grades were at greater risk of being bullies or victims in analyses accounting for many potential confounds.

The next strongest relations were the negative relation between being Hispanic and being a victim (ES =  $-.10$ ,  $p < .001$ ) and the positive relation between being Black and being a bully (ES =  $.11$ ,  $p < .001$ ). Additional significant direct effects were between SES and being a bully (ES =  $-.08$ ,  $p < .001$ ) and between school poverty (i.e., attending a school with a greater percentage of students who were receiving free or reduced-price lunch) and being a victim (ES =  $.07$ ,  $p < .001$ ). Other relations above .05 in absolute value include that between being a victim and males (ES =  $-.06$ ,  $p < .001$ ), English language learners (ELL) (ES =  $-.06$ ,  $p < .001$ ), academic achievement (ES =  $-.07$ ,  $p < .001$ ), behavioral self-regulation (ES =  $-.07$ ,  $p < .001$ ), and harsh parenting (ES =  $.06$ ,  $p < .001$ ). Statistically significant direct effects above .05 in absolute value for being a bully included being an unmarried or single parent (ES =  $.06$ ,  $p < .001$ ) and internalizing problem behaviors (ES =  $-.05$ ,  $p < .001$ ).

### Indirect Effects on Being Bullies or Victims

Figure 2's SEM yields evidence of indirect paths by which causally prior variables were related to either being bullies or victims. We tested the statistical significance of the largest of these indirect paths using the *model indirect* statement in Mplus (MacKinnon, 2012). Appendix Table A2 displays these results. The association between males and being bullies was partially mediated through the higher likelihood of males displaying externalizing problem behaviors (indirect ES =  $0.13$ ,  $p < .001$ ). Although males were less likely than females to be victims, males who displayed higher externalizing behaviors were more likely to be victimized in U.S. elementary schools (ES =  $0.07$ ,  $p < .001$ ). Children from families with higher SES were less likely to be bullies, which was partially mediated through their lower likelihood of displaying externalizing behavior (ES =  $-.05$ ,  $p < .001$ ). The association between being ELL and being bullies was partially mediated by the lower likelihood of children who are ELL to display externalizing behavior (ES =  $-.05$ ,  $p < .001$ ). Children raised by single parents were more likely to be bullies. This relation was partially mediated through their higher likelihood of displaying externalizing behavior (ES =  $.06$ ,  $p < .001$ ). Children whose parents reported parenting as difficult were more likely to display

externalizing behaviors, which fully mediated this association with bullying ( $ES = .05$ ,  $p < .001$ ). Consistent with Figure 2's direct effect estimates, the indirect effect estimates further indicated that children who engaged in externalizing problem behaviors during kindergarten to second grade were more likely to be bullies or victims of bullies during third to fifth grade.

## Discussion

Results from our SEM of a nationally representative sample of U.S. elementary schoolchildren indicated that those who more frequently engaged in externalizing problem behaviors during kindergarten to second grade were especially likely to be bullies during third to fifth grade. We observed an ES of .56 for this relation. Children who frequently engaged in externalizing problem behaviors during kindergarten to second grade were also more likely to be victims during third to fifth grade. This ES was .29. Thus, an especially strong risk factor for being bullies or victims in U.S. elementary schools during the upper elementary grades is whether children were engaging in externalizing problem behaviors during the primary grades. While other relations within the SEM were statistically significant, none approached the size of these observed ESs for externalizing problem behaviors. We also observed that the strongest indirect paths from prior variables to the third to fifth grade bullying perpetration and victimization were through externalizing problem behaviors.

These findings are consistent with prior work indicating that children who engage in externalizing problem behaviors are more likely to be physically or verbally aggressive and so bully others as well as to be victims due to their lower social status and retaliatory behavior by other children (Cook et al., 2010; Elliott et al., 2019; Ettekal & Ladd, 2017, 2020; Lebrun-Harris et al., 2019; Oncioiu et al., 2020; Pouwels et al., 2019). Our results provide strong support for the importance of identifying and assisting children who are frequently engaging in externalizing problem behaviors by the primary grades. An implication of these findings is that school personnel including teachers, counselors, and administrators should pay close attention to children who are frequently engaging in externalizing problem behaviors by the primary grades. Attempting to address their aggressive or impulsive behavior in the early elementary grades might be guided by the concepts of proactive and reactive aggression to better understand why the aggressive behaviors are occurring and so prevent the bullying-victimization-bullying cycle (Salmivalli & Nieminen, 2002; Samson et al., 2022; Schwartz et al., 1998). Proactive aggressive behaviors are goal-directed towards the acquisition of social positions or objects. Reactive aggressive behaviors are angry and retaliatory to perceived provocations. Proactively aggressive children may be best deterred by clear rules and strong sanctioning whereas reactively aggressive children may be more effectively deterred by training in anger control accompanied by relationships with caring adults who will intervene to stop bullying (Gage et al., 2014; Låftman et al., 2016).

## Strengths and Limitations

Strengths of our study include analyses of a nationally representative sample followed from the beginning of kindergarten to the end of fifth grade. To our knowledge, no prior study has reported on factors during kindergarten to second grade that both directly and indirectly predict being bullies or victims during the upper elementary grades through SEM analyses of a population-based cohort (Ettekal & Ladd, 2017, 2020; Lebrun-Harris et al., 2019; Lereya et al., 2015; Oncioiu et al., 2020). We also extensively adjusted for factors previously identified as potential confounds including other types of behavioral functioning, biological sex, family SES, school demographic composition and parental stress and harsh discipline. We averaged together multi-year measures of bullying perpetration and victimization across third to fifth grade for all children in the sample. Doing so should have better identified kindergarten to second grade factors predictive of persistent bullying and bullying victimization during the upper elementary grades.

Our study also has limitations. We were unable to analyze data from direct observations. We instead analyzed children's self-reports of victimization and teacher reports of bullying perpetration. Although empirical research of bullying and victimization often relies on self-reports, such data can be subject to measurement error (Connell et al., 2019; Oldenburg, 2017). Our measures of bullying and victimization did not assess for intentionality or power differentials. This is a very common limitation of bullying assessments (Hamberger et al., 2011), particularly those designed for young children whose perspective-taking abilities may be less developed (Vaillancourt et al., 2008).<sup>1</sup> The ECLS-K: 2011's data collection ended in the spring of fifth grade. We were unable to examine whether these predictive relations were evident as children attended middle and high school. Bullying and victimization's predictors may change over developmental time periods (Cillessen & Lansu, 2015) including during transitions to middle or high school (Troop-Gordon, 2017). We sought to identify sociodemographic factors that were plausibly exogenous to bullying and victimization. Consequently, we did not include other factors including disability status that might have been endogenous to children's bullying or victimization and were more likely to occur later in elementary school (Morgan et al., 2015). Other work reports associations between disability status and bullying and victimization including during elementary school (Fogler et al., 2022; Morgan et al., 2022; Wiener & Mak, 2009).

Our results are not causal. We instead report the extent to which specific factors are predictive of bullying perpetration or victimization conditional on the other factors included in the SEM. Measures of bullying victimization were not administered in earlier grades in the ECLS-K: 2011. We were therefore unable to control for prior histories of bullying perpetration or victimization. However, we did include three measures of behavioral functioning as early predictors in the SEM. One of these—externalizing problem behaviors—had by far the strongest relation with both bullying perpetration and victimization. Experimental studies are needed to conclusively establish

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<sup>1</sup>Jia and Mikami's (2018) synthesis reports on difficulties and potential alternatives when assessing for power differentials and intentionality in bullying assessments designed for school-aged children. A meta-analysis by Gaffney and colleagues (2021) details a wide range of interventions designed to prevent or reduce bullying or victimization involving power differentials and intentionality in school-based contexts.



that intervening upon externalizing problem behaviors results in elementary school-aged children experiencing less bullying perpetration and victimization.

### Contributions and Implications

To date, the field's emphasis on victims rather than bullies and on analyses based on convenience samples rather than on nationally representative samples has limited screening and prevention efforts as well as the generalizability of the reported findings (Kljakovic & Hunt, 2016; NASEM, 2016). Risk and protective factor estimates as early as kindergarten that are predictive of later being bullies or victims have been largely unavailable (Jackson et al., 2017; Košir et al., 2019; Lereya et al., 2015; Oncioiu et al., 2020). Our study makes several contributions by helping to address these and additional limitations in extant work's knowledge base. For example, our analyses of a multiyear longitudinal and nationally representative sample with extensive adjustment for potential confounds provides more generalizable and rigorous estimates of victimization and bullying perpetration's modifiable risk and protective factors and so directly responds to calls for such work to advance early screening and prevention efforts during a developmental period when these efforts may be most effective (NASEM, 2016; Yeager et al., 2015).

To our knowledge, no prior study has estimated a SEM using such a large set of potential predictors of bullying perpetration and victimization—eight socio-demographic variables, six parental stress and parenting style variables, three kindergarten to second grade behavioral variables, and one kindergarten to second grade achievement variable. We included both bullying perpetration and victimization as dependent variables in this model, with their error terms correlated. This is an appropriate way to include both dependent variables in a SEM. The finding that the error terms for these variables positively and significantly correlated ( $r=.19, p<.001$ ) provides additional empirical support that some U.S. elementary schoolchildren are bully-victims by the elementary grades (Lereya et al., 2015; Walters, 2021).

Our findings are consistent with prior work suggesting that young children who frequently engage in externalizing problem behaviors experience social isolation due to their physical and verbal aggression, which may explain their higher risk for being frequently victimized (Pouwels et al., 2019; Reijntjes et al., 2011). These children's greater risks for being bullies and victims is evident by the primary grades and is not explained by internalizing problem behaviors, lower behavioral self-regulation, being from a lower income family, or by other measured confounds (Nakamoto & Schwartz, 2010; Reijntjes et al., 2011). One implication of this finding for educators and counselors is that children already frequently engaging in externalizing problem behaviors by the primary grades may benefit from the early delivery of school-based mental health services addressing their maladaptive behaviors (Boivin et al., 2013; Oncioiu et al., 2020). Externalizing problem behaviors can be remediated through early intervention in preschool- or school-based settings, particularly those intensively targeting children's social skills (Schindler et al., 2015), and providing specific training to parents or teachers using standardized curricula and trained facilitators (Aldabbagh et al., 2022; Buchanan-Pascall et al., 2018; Carney et al., 2015). School-based interventions have



recently been estimated to reduce bullying perpetration and victimization by 15-16% and 18-19%, respectively (Gaffney et al., 2021).

Our results also show that higher academic achievement and greater behavioral self-regulation modestly reduce children's risks of being victims of bullying. However, and consistent with other work (Turunen et al., 2021), these relations are weaker than those between externalizing problems and bullying perpetration or victimization. Our findings provide additional empirical support for prior theoretical and applied work suggesting that greater academic achievement is a protective factor for bullying or victimization (Morales et al., 2019), possibly as a result of providing children with greater social status and lowering their risk for social-emotional maladjustment (Morgan et al., 2012). Academic achievement is also modifiable through early interventions (Connor et al., 2014). Addressing children's academic struggles may help lower their social isolation (Chong et al., 2014; Morgan et al., 2012) and so decrease their risks for bullying perpetration or victimization (Turunen et al., 2017). Early interventions to assist academically struggling students may also assist their behavioral and social functioning (Morgan et al., 2012; Turunen et al., 2021).

Although some work based on analyses of cross-sectional studies finds that parenting is associated with bullying perpetration or victimization (Nocentini et al., 2019), our results are consistent with other studies suggesting that control for potential confounds helps explain the observed associations between parenting and children's risks for bullying perpetration or victimization (Nocentini et al., 2019; Oncioiu et al., 2020; Zimmerman et al., 2005). The exception was a direct relation between experiencing harsh discipline and a greater risk for victimization. Harsh discipline also was indirectly related to bullying perpetration or victimization through its effect on externalizing problem behaviors. These findings are consistent with prior work suggesting that early interventions to prevent or reduce bullying should include parents and begin before elementary school (Carney et al., 2015; de Vries et al., 2018; Lereya et al., 2013).

Unexpectedly, we did not find that internalizing problem behaviors in kindergarten to second grade predicted a higher risk for victimization during third to fifth grade. Internalizing problems predicted a lower risk of being bullies during this period. This is consistent with recent work finding that elementary schoolchildren who are more withdrawn are *less* likely to be aggressive or be relational aggressive-victims (Ettetal & Ladd, 2020). Overall, our finding that bullying perpetration and victimization's strongest measured predictor is externalizing problem behaviors during elementary school is consistent with meta-analysis (Cook et al., 2010), which indicated a stronger relation between bullying and externalizing than internalizing problem behaviors including an especially strong relation for externalizing problem behaviors during elementary school ( $r = .40$ ). The previously reported relation (Cook et al., 2010) with internalizing problem behaviors was more evident during middle and high school ( $r = .19$ ) than during elementary school ( $r = .03$ ).

Our study makes additional contributions to the field's knowledge base. Prior findings that Black children are at elevated risk for being bullies and victims were based on cross-sectional designs or analyses of adolescent samples (Goldbach et al. 2018; Lebrun-Harris et al., 2019; Morales et al., 2019). Our longitudinal analyses found that Black children are

already more likely to be bullies by the elementary grades both directly and indirectly via increased externalizing problem behaviors. In contrast, the relation between being Black and victimization was not direct, but instead indirect through externalizing and harsh parenting. Historical and on-going racism in the U.S. has led Black children to be over-represented in communities experiencing more violence and family conflict, which could lead to Black children being especially likely to be involved in aggression and victimization involving peers engaging in racial acts (Goldbach et al., 2018). This finding is of concern given that bully-victims are at greatest risk of experiencing adverse sequelae (Lereya et al., 2015; Wolke et al., 2013).

Related work finding that Hispanic children and emergent bilinguals are at lower risk for bullying perpetration or victimization has also been based on cross-sectional designs and analyses of adolescents (Shetgiri et al., 2010). We find that the lower risk for bullying perpetration and victimization attributable to children's status as Hispanic or emergent bilinguals is also evident by elementary school. Our finding is consistent with theoretical accounts in which children who are Hispanic, bicultural, or recent immigrants are less likely to engage in or experience violence while attending schools (Smokowski et al., 2009). For example, and as stated by Vitoroulos and Vaillant (2018, p. 754), "cultural models about groups from collectivist backgrounds, such as East Asians and Hispanic Americans, suggest that these groups strongly discourage and disapprove of aggressive behavior." Hispanic children including those who are emergent bilinguals may be at lower risk for victimization due to social networks and cultural values that function to buffer against stressors and adversity (Gallo et al., 2009).

Our findings are consistent with other recent work suggesting the potential importance of intervening early during schooling to prevent or reduce children's later likelihood of being bullies or victims (Lebrun-Harris et al., 2019; Oncioiu et al., 2020; Walters, 2021). We extend this other work (Ettetal & Ladd, 2017; Haltigan & Vaillancourt, 2014; Lereya et al., 2015; Rodkin et al., 2014; Zych et al., 2020) by establishing that U.S. children's risks for being bullies or victims during the upper elementary grades can be reliably predicted by their behavioral and academic functioning by the primary grades. Our results are also consistent with prior work including social ecological theory (Hong & Espelage, 2012; Jackson et al., 2017), in which children's risks for being bully and victims are explained by their individual traits, the children's immediate physical and social environments, and by interactions of systems within these environments (Cook et al., 2010; Hemphill et al., 2012; Hong & Espelage, 2012; Košir et al., 2019; Lee et al., 2021; Mundy et al., 2017; Nocentini et al., 2019; Oncioiu et al., 2020; Pouwels et al., 2019). We extend this prior work by establishing that U.S. elementary schoolchildren's social ecologies are directly and indirectly predictive by the primary grades of their risks for being bullies and victims by the upper elementary grades.

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## Appendix.

**Table A1.**

All estimated coefficients and their standard errors from the fully recursive model.

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
<i>DIRECT PATHS</i>					
ZVICTIM					
	BLACK	-0.023	0.015	-1.503	0.133
	HISP	-0.103	0.014	-7.201	0
	OTHER	0.004	0.012	0.356	0.722
	MALE	-0.058	0.011	-5.486	0
	SES	-0.042	0.014	-2.944	0.003
	ELL	-0.059	0.012	-4.737	0
	SINGLE	0.026	0.012	2.135	0.033
	ZLUNCH	0.073	0.017	4.398	0
	ZNONWHITE	0.023	0.017	1.366	0.172
	ZACHIEVE	-0.072	0.014	-5.17	0
	ZEXTERN	0.287	0.017	16.864	0
	ZINTERN	0.004	0.013	0.339	0.735
	ZAPPROACHES	-0.065	0.019	-3.398	0.001
	ZFOODINS	0.016	0.012	1.319	0.187
	ZISOLATED	-0.009	0.012	-0.752	0.452
	ZDEPRESS	0.028	0.012	2.335	0.02
	ZHARSH	0.061	0.011	5.458	0
	ZWARMTH	-0.002	0.011	-0.189	0.85
	ZATTITUDE	-0.006	0.011	-0.591	0.555
ZBULLY					
	BLACK	0.106	0.014	7.806	0
	HISP	-0.012	0.012	-0.953	0.341
	OTHER	0.001	0.009	0.074	0.941
	MALE	0.042	0.009	4.673	0
	SES	-0.081	0.012	-6.915	0
	ELL	-0.043	0.011	-3.905	0
	SINGLE	0.057	0.011	5.247	0
	ZLUNCH	0.035	0.014	2.535	0.011
	ZNONWHITE	0.001	0.014	0.05	0.96
	ZACHIEVE	-0.014	0.012	-1.176	0.239
	ZEXTERN	0.556	0.014	40.374	0
	ZINTERN	-0.053	0.011	-4.821	0
	ZAPPROACHES	-0.022	0.016	-1.399	0.162
	ZFOODINS	0.008	0.012	0.683	0.494
	ZISOLATED	-0.01	0.011	-0.872	0.383
	ZDEPRESS	0.006	0.01	0.571	0.568

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
	ZHARSH	0.037	0.01	3.88	0
	ZWARMTH	-0.002	0.009	-0.277	0.782
	ZATTITUDE	0.012	0.009	1.304	0.192
<b>PREDICTORS OF PARENT STRESS</b>					
<b>ZFOODINS</b>					
	BLACK	-0.005	0.013	-0.39	0.697
	HISP	0.022	0.013	1.69	0.091
	OTHER	0.016	0.01	1.53	0.126
	MALE	0.008	0.009	0.902	0.367
	SES	-0.272	0.011	-24.698	0
	ELL	0.033	0.013	2.599	0.009
	SINGLE	0.072	0.012	5.882	0
	ZLUNCH	0.048	0.015	3.248	0.001
	ZNONWHITE	-0.002	0.015	-0.153	0.879
<b>ZISOLATE</b>					
	BLACK	-0.057	0.015	-3.937	0
	HISP	-0.064	0.015	-4.349	0
	OTHER	-0.063	0.01	-5.994	0
	MALE	-0.006	0.01	-0.661	0.509
	SES	0.17	0.013	13.182	0
	ELL	-0.199	0.016	-12.799	0
	SINGLE	-0.017	0.012	-1.382	0.167
	ZLUNCH	-0.005	0.016	-0.306	0.759
	ZNONWHITE	-0.075	0.017	-4.334	0
<b>ZDEPRESS</b>					
	BLACK	-0.004	0.014	-0.296	0.767
	HISP	0.007	0.015	0.475	0.635
	OTHER	-0.006	0.01	-0.578	0.563
	MALE	0.001	0.01	0.056	0.955
	SES	-0.155	0.013	-12.232	0
	ELL	-0.064	0.013	-4.997	0
	SINGLE	0.098	0.012	8.119	0
	ZLUNCH	0.035	0.015	2.323	0.02
	ZNONWHITE	-0.024	0.016	-1.481	0.139
<b>ZHARSH</b>					
	BLACK	0.15	0.014	10.831	0
	HISP	-0.004	0.014	-0.307	0.759
	OTHER	0.001	0.01	0.104	0.917
	MALE	0.037	0.009	3.9	0
	SES	-0.059	0.013	-4.66	0
	ELL	-0.017	0.012	-1.456	0.145

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
ZWARMTH	SINGLE	-0.019	0.011	-1.663	0.096
	ZLUNCH	0.111	0.016	7.163	0
	ZNONWHITE	-0.006	0.016	-0.371	0.71
	BLACK	-0.027	0.013	-2.058	0.04
	HISP	0.024	0.014	1.726	0.084
	OTHER	0.006	0.01	0.633	0.526
	MALE	0.024	0.01	2.46	0.014
	SES	-0.043	0.013	-3.372	0.001
	ELL	0.105	0.014	7.762	0
	SINGLE	-0.03	0.011	-2.692	0.007
ZATTITUD	ZLUNCH	-0.013	0.016	-0.81	0.418
	ZNONWHITE	-0.021	0.017	-1.229	0.219
	BLACK	-0.014	0.014	-1.006	0.314
	HISP	-0.024	0.014	-1.699	0.089
	OTHER	0.012	0.01	1.229	0.219
	MALE	0.018	0.01	1.854	0.064
	SES	0.002	0.013	0.119	0.905
	ELL	0.053	0.012	4.369	0
	SINGLE	0.038	0.011	3.352	0.001
	ZLUNCH	0.019	0.017	1.151	0.25
ZNONWHITE	0.011	0.017	0.637	0.524	
<b>PREDICTORS OF ACHIEVE/BEHAVE</b>					
ZACHIEVE	ZFOODINS	-0.024	0.009	-2.692	0.007
	ZISOLATED	0.053	0.01	5.25	0
	ZDEPRESS	-0.012	0.009	-1.284	0.199
	ZHARSH	-0.04	0.009	-4.446	0
	ZWARMTH	0.012	0.009	1.319	0.187
	ZATTITUDE	-0.018	0.009	-2.05	0.04
	ZAGE	0.089	0.008	11.036	0
	BLACK	-0.075	0.01	-7.107	0
	HISP	-0.084	0.012	-7.167	0
	OTHER	0.019	0.009	2.091	0.037
	MALE	-0.024	0.008	-2.916	0.004
	SES	0.349	0.011	31.689	0
	ELL	-0.029	0.01	-2.856	0.004
	SINGLE	-0.05	0.009	-5.484	0
	ZLUNCH	-0.06	0.013	-4.491	0
	ZNONWHITE	0.047	0.014	3.471	0.001

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
ZEXTERN					
	ZFOODINS	0.011	0.012	0.92	0.357
	ZISOLATED	-0.011	0.012	-0.957	0.339
	ZDEPRESS	0.017	0.011	1.465	0.143
	ZHARSH	0.078	0.011	7.354	0
	ZWARMTH	0.014	0.01	1.462	0.144
	ZATTITUDE	0.085	0.01	8.521	0
	BLACK	0.061	0.013	4.603	0
	HISP	-0.029	0.013	-2.171	0.03
	OTHER	0.004	0.01	0.361	0.718
	MALE	0.241	0.009	27.431	0
	SES	-0.09	0.013	-7.176	0
	ELL	-0.088	0.011	-7.98	0
	SINGLE	0.108	0.011	9.77	0
	ZLUNCH	0.011	0.015	0.743	0.458
	ZNONWHITE	-0.003	0.016	-0.207	0.836
ZINTERN					
	ZFOODINS	0.046	0.012	3.686	0
	ZISOLATED	-0.017	0.012	-1.417	0.157
	ZDEPRESS	0.066	0.013	5.14	0
	ZHARSH	-0.025	0.011	-2.398	0.016
	ZWARMTH	0.006	0.011	0.582	0.561
	ZATTITUDE	0.033	0.01	3.233	0.001
	BLACK	-0.022	0.014	-1.608	0.108
	HISP	-0.03	0.014	-2.205	0.027
	OTHER	0	0.011	-0.026	0.979
	MALE	0.053	0.01	5.576	0
	SES	-0.099	0.013	-7.757	0
	ELL	-0.084	0.012	-6.978	0
	SINGLE	0.081	0.012	6.746	0
	ZLUNCH	-0.003	0.015	-0.165	0.869
	ZNONWHITE	-0.002	0.016	-0.126	0.9
ZAPPROACHES					
	ZFOODINS	-0.032	0.01	-3.064	0.002
	ZISOLATED	0.04	0.011	3.607	0
	ZDEPRESS	-0.031	0.011	-2.955	0.003
	ZHARSH	-0.045	0.01	-4.53	0
	ZWARMTH	0.001	0.01	0.128	0.898
	ZATTITUDE	-0.06	0.01	-6.333	0
	BLACK	-0.046	0.012	-3.862	0
	HISP	-0.001	0.013	-0.116	0.908

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
	OTHER	0.004	0.01	0.384	0.701
	MALE	-0.276	0.009	-32.072	0
	SES	0.209	0.012	17.738	0
	ELL	0.073	0.011	6.652	0
	SINGLE	-0.101	0.01	-9.785	0
	ZLUNCH	0.066	0.014	4.629	0
	ZNONWHITE	-0.003	0.015	-0.213	0.831
<b>CORRELATIONS WITHIN PREDICTOR BLOCKS</b>					
ZACHIEVE					
	ZEXTERN	-0.18	0.01	-18.465	0
	ZINTERN	-0.219	0.009	-23.395	0
	ZAPPROACHES	0.504	0.008	67.111	0
ZEXTERN					
	ZINTERN	0.309	0.011	27.847	0
	ZAPPROACHES	-0.636	0.006	-102.724	0
ZINTERN					
	ZAPPROACHES	-0.404	0.009	-45.509	0
ZBULLY					
	ZVICTIM	0.189	0.013	14.707	0
ZFOODINS					
	ZISOLATED	-0.168	0.014	-12.183	0
	ZDEPRESS	0.276	0.013	20.932	0
	ZHARSH	0.068	0.011	6.158	0
	ZWARMTH	0.071	0.011	6.501	0
	ZATTITUDE	0.114	0.01	11.021	0
ZISOLATE					
	ZDEPRESS	-0.097	0.014	-7.039	0
	ZHARSH	-0.025	0.011	-2.21	0.027
	ZWARMTH	-0.118	0.013	-9.162	0
	ZATTITUDE	-0.048	0.012	-3.989	0
ZDEPRESS					
	ZHARSH	0.157	0.011	14.329	0
	ZWARMTH	0.136	0.011	12.143	0
	ZATTITUDE	0.253	0.01	24.528	0
ZHARSH					
	ZWARMTH	0.138	0.011	12.518	0
	ZATTITUDE	0.18	0.01	17.751	0
ZWARMTH					
	ZATTITUDE	0.1	0.01	9.967	0
BLACK					
	ZAGE	-0.034	0.012	-2.9	0.004



Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
HISP	ZAGE	-0.088	0.01	-8.551	0
	BLACK	-0.219	0.004	-61.359	0
OTHER	ZAGE	-0.035	0.009	-3.676	0
	BLACK	-0.129	0.002	-51.808	0
	HISP	-0.196	0.003	-60.859	0
MALE	ZAGE	0.05	0.01	4.974	0
	BLACK	0.01	0.01	1.028	0.304
	HISP	-0.006	0.009	-0.587	0.557
	OTHER	-0.015	0.009	-1.753	0.08
SES	ZAGE	0.032	0.01	3.033	0.002
	BLACK	-0.155	0.009	-17.026	0
	HISP	-0.335	0.008	-39.531	0
	OTHER	0.081	0.009	8.933	0
	MALE	-0.002	0.009	-0.243	0.808
ELL	ZAGE	-0.104	0.01	-10.016	0
	BLACK	-0.127	0.006	-20.874	0
	HISP	0.507	0.009	54.36	0
	OTHER	0.104	0.009	11.18	0
	MALE	-0.011	0.009	-1.181	0.238
	SES	-0.312	0.009	-35.95	0
SINGLE	ZAGE	-0.013	0.01	-1.229	0.219
	BLACK	0.279	0.011	25.447	0
	HISP	0.07	0.01	7.101	0
	OTHER	-0.038	0.009	-4.25	0
	MALE	0.009	0.01	0.901	0.368
	SES	-0.37	0.008	-47.557	0
	ELL	-0.019	0.009	-2.107	0.035
ZLUNCH	ZAGE	-0.034	0.011	-3.137	0.002
	BLACK	0.228	0.01	22.427	0
	HISP	0.329	0.01	34.037	0
	OTHER	-0.047	0.009	-5.006	0
	MALE	-0.002	0.01	-0.151	0.88
	SES	-0.565	0.007	-80.019	0
	ELL	0.283	0.009	30.302	0

Dependent Variable	Independent Variables	Two-Tailed Estimate	S.E.	Est./S.E.	p-value
	SINGLE	0.293	0.009	31.375	0
ZNONWHIT					
	ZAGE	-0.154	0.01	-15.389	0
	BLACK	0.313	0.009	34.709	0
	HISP	0.418	0.009	47.777	0
	OTHER	0.077	0.008	9.64	0
	MALE	-0.009	0.01	-0.907	0.364
	SES	-0.369	0.008	-44.738	0
	ELL	0.39	0.009	45.696	0
	SINGLE	0.233	0.01	24.259	0
	ZLUNCH	0.633	0.007	86.032	0

**Table A2.**

Full results for indirect paths suggested by the fully recursive SEM

Predictor	Mediator	Outcome	Estimate	S.E.	Est./S.E.	p-value
Black	Extern	Bully	0.03	0.007	4.579	0
Male	Extern	Bully	0.13	0.006	22.081	0
SES	Extern	Bully	-0.05	0.007	-6.882	0
SES	Intern	Bully	0.01	0.001	4.029	0
English	Extern	Bully	-0.05	0.006	-7.68	0
Single	Extern	Bully	0.06	0.006	9.399	0
Lunch	Extern	Bully	0.01	0.008	0.75	0.453
Food Insecure	Extern	Bully	0.01	0.006	0.917	0.359
Isolated Parent	Extern	Bully	-0.01	0.007	-0.949	0.343
Depressed Parent	Extern	Bully	0.01	0.006	1.484	0.138
Harsh Discipline	Extern	Bully	0.04	0.006	7.316	0
Parent Difficult	Extern	Bully	0.05	0.006	8.4	0
Hispanic	Extern	Victim	-0.01	0.004	-2.123	0.034
Male	Extern	Victim	0.07	0.005	14.452	0
SES	Extern	Victim	-0.03	0.004	-6.57	0
English	Extern	Victim	-0.03	0.004	-7.178	0
Single	Extern	Victim	0.03	0.004	8.316	0
Lunch	Extern	Victim	0.00	0.004	0.747	0.455
Food Insecure	Extern	Victim	0.00	0.003	0.912	0.362
Depressed Parent	Extern	Victim	0.01	0.003	1.478	0.139
Harsh Discipline	Extern	Victim	0.02	0.003	6.804	0
Black	Achieve	Victim	0.01	0.001	4.148	0
Parent Difficult	Learn	Victim	0.00	0.001	2.89	0.004
Male	Learn	Victim	0.02	0.005	3.348	0.001

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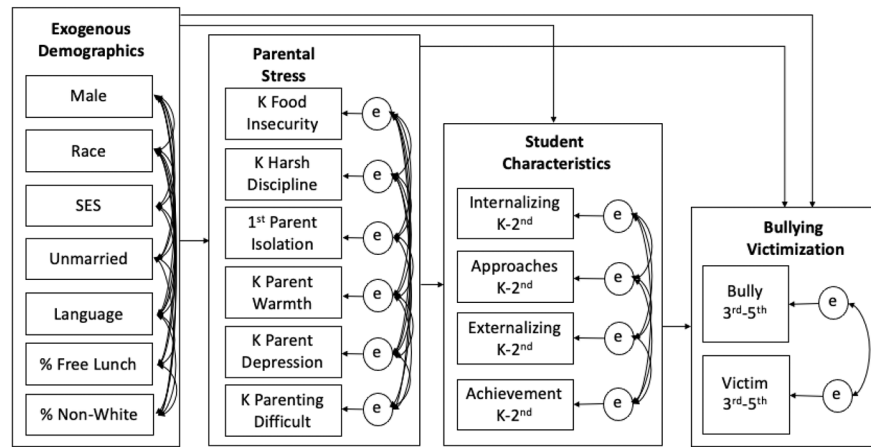


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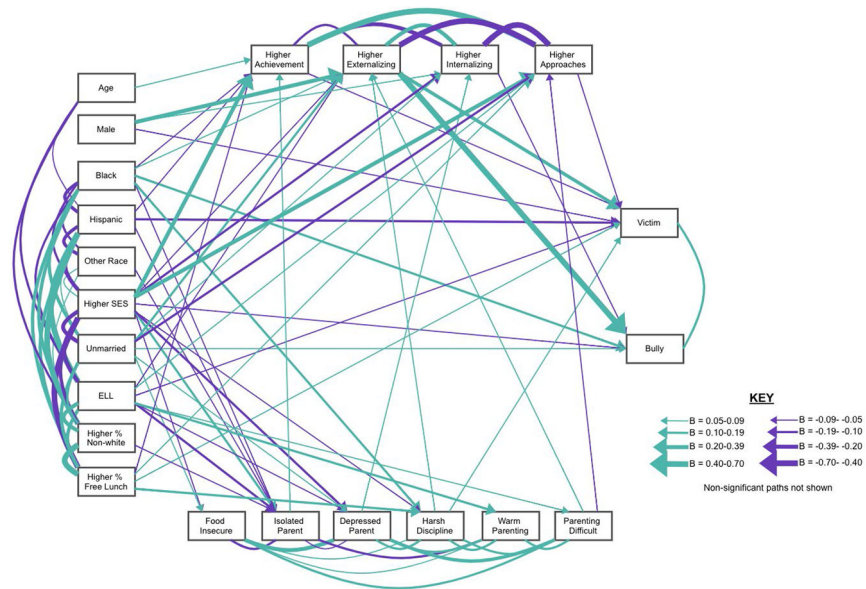
**Figure 1.**  
Study's Conceptual Model

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**Figure 2. Path Diagram with Estimated Effect Sizes >0.05 and p<0.05**

*Note:* ELL = English Language Learner; SES=socioeconomic status. Larger lines indicate larger effects. Green lines indicate positive relations; purple lines indicate negative relations.

Standardized and Unstandardized Descriptive Statistics Under Full Information Maximum Likelihood (Analytic Sample) and Listwise Deletion Methods

Table 1

	FIML (N= 13,611)		Listwise Deletion (N = 5,760)		Unique Values	Analytic Sample under FIML				
	M	SD	M	SD		% Missing	Standardized Range Min	Max	Unstandardized Values M	SD
Victim	0.03		-0.02	1.01	24.40	162	-1.40	3.62	2.10	0.80
Bully	0.02		-0.04	0.94	27.48	81	-0.81	5.76	1.47	0.57
Age	0.01		0.06	0.98	11.7	>500	-6.35	4.82	67.67	4.48
Male	0.52		0.52	0.50	0.00	2	0	1	--	--
White	0.52		0.58	0.49	0.01	2	0	1	--	--
Black	0.13		0.10	0.30	0.01	2	0	1	--	--
Hispanic	0.25		0.23	0.42	0.01	2	0	1	--	--
Other	0.10		0.09	0.28	0.01	1	0	0	--	--
SES	-0.05		0.04	0.82	0.61	>500	-2.33	2.44	--	--
ELL	0.17		0.15	0.36	0.21	2	0	1	--	--
Single	0.28		0.24	0.43	0.96	2	0	1	--	--
% Free Lunch	-0.01		-0.09	0.98	19.99	101	-1.56	1.53	47.63	31.71
% Nonwhite	-0.05		-0.17	0.97	14.88	101	-1.37	1.57	40.79	33.03
Food Insecure	0.01		-0.06	0.88	2.51	103	-0.48	6.98	0.73	1.53
Isolated Parent	0.02		0.08	0.93	4.64	9	-4.05	0.63	2.76	0.40
Depressed Par.	0.02		-0.01	0.96	7.78	63	-0.88	6.30	1.36	0.40
Harsh Discipl.	0.02		0.01	0.99	21.19	22	-0.98	5.35	0.03	2.16
Warm Parent	0.00		0.07	0.88	4.96	18	-5.34	6.67	1.25	0.37
Parenting Diff.	-0.01		-0.06	0.84	5.03	19	-1.35	5.49	-2.06	0.61
Externalizing	-0.01		-0.06	0.91	3.06	>500	-1.22	4.21	1.64	0.50
Internalizing	0.00		-0.03	0.89	3.17	186	-1.35	6.36	1.51	0.35
Approaches	0.02		0.10	0.93	3.02	>500	-3.23	1.61	3.09	0.56
Achievement	0.04		0.13	0.99	0.84	>500	-4.15	4.33	0.10	0.87

Note. FIML=Full information maximum likelihood; SES=socioeconomic status; ELL=English language learner.

Table 2.

Correlation Matrix of Study's Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1 Victim	1.00																						
2 Bully	0.39	1.00																					
3 Food Insecure	0.09	0.11	1.00																				
4 Isolated Parent	-0.05	-0.07	-0.26	1.00																			
5 Depressed	0.11	0.11	0.32	-0.13	1.00																		
6 Harsh Disc.	0.14	0.16	0.11	-0.07	0.18	1.00																	
7 Warm Parent	0.01	0.02	0.09	-0.15	0.13	0.13	1.00																
8 Parenting Diff.	0.06	0.09	0.12	-0.07	0.25	0.18	0.10	1.00															
9 Externalizing	0.37	0.62	0.08	-0.04	0.10	0.14	0.03	0.11	1.00														
10 Internalizing	0.17	0.18	0.10	-0.04	0.12	0.02	0.01	0.06	0.34	1.00													
11 Approaches	-0.32	-0.45	-0.14	0.10	-0.12	-0.11	-0.03	-0.09	-0.68	-0.43	1.00												
12 Achievement	-0.20	-0.22	-0.20	0.21	-0.12	-0.12	-0.03	-0.05	-0.23	-0.25	0.53	1.00											
13 Age at Assess.	-0.03	-0.03	-0.01	0.06	0.01	-0.01	-0.01	-0.01	-0.03	-0.03	0.11	0.17	1.00										
14 Black	0.12	0.24	0.06	-0.07	0.06	0.18	-0.06	0.00	0.14	0.04	-0.12	-0.14	-0.03	1.00									
15 Hispanic	-0.07	-0.03	0.15	-0.23	0.04	0.01	0.08	0.02	-0.04	-0.02	-0.03	-0.23	-0.09	-0.03	1.00								
16 Other	0.00	-0.04	-0.01	-0.05	-0.03	-0.03	0.01	0.02	-0.02	-0.01	0.04	0.08	-0.04	-0.09	-0.22	1.00							
17 Male	0.04	0.19	0.01	0.00	0.00	0.04	0.02	0.02	0.25	0.06	-0.28	-0.02	0.05	-0.04	-0.13	-0.20	1.00						
18 SES	-0.15	-0.21	-0.34	0.29	-0.18	-0.13	-0.05	-0.03	-0.13	-0.12	0.23	0.47	0.03	0.05	0.01	-0.01	-0.02	1.00					
19 ELL	-0.07	-0.06	0.14	-0.31	-0.01	0.01	0.12	0.05	-0.07	-0.06	0.02	-0.20	-0.10	0.03	-0.16	-0.34	0.08	0.00	1.00				
20 Single	0.15	0.23	0.19	-0.11	0.16	0.08	-0.03	0.04	0.18	0.13	-0.20	-0.23	-0.01	-0.10	-0.13	0.51	0.10	-0.01	-0.31	1.00			
21 % Free Lunch	0.14	0.17	0.24	-0.24	0.12	0.16	0.02	0.04	0.10	0.06	-0.11	-0.32	-0.04	-0.01	0.28	0.07	-0.04	0.01	-0.37	-0.02	1.00		
22 % Nonwhite	0.07	0.12	0.17	-0.27	0.05	0.12	0.02	0.04	0.05	0.01	-0.07	-0.24	-0.15	-0.04	0.23	0.33	-0.05	0.00	-0.57	0.28	0.29	1.00	

Note. SES=socioeconomic status; ELL=English language learner.