UC Irvine
UC Irvine Previously Published Works

Title

Which Children are Frequently Victimized in U.S. Elementary Schools? Population-based Estimates.

Permalink

Journal

ISSN

Authors

Morgan, Paul
Woods, Adrienne
Wang, Yangyang
et al.

Publication Date

DOI

Peer reviewed

Which Children are Frequently Victimized in U.S. Elementary Schools? Population-based Estimates

Paul L. Morgan, Ph.D.,
Penn State

Adrienne D. Woods, Ph.D,
Penn State

Yangyang Wang, M.A.,
Penn State

George Farkas, Ph.D.,
University of California, Irvine

Yoonkyung Oh, Ph.D.,
University of Texas Health Sciences Center

Marianne M. Hillemeier, Ph.D.,
Penn State

Cynthia Mitchell, B.S.
Penn State

Abstract

We analyzed a population-based cohort of 11,780 U.S. kindergarten children to identify risk and protective factors predictive of frequent verbal, social, reputational, and/or physical bullying victimization during the upper elementary grades. We also stratified the analyses by biological sex. Both girls and boys displaying kindergarten externalizing problem behaviors were at consistently higher risk of frequent victimization during 3rd-5th grade (for the combined sample of boys and girls, verbal odds ratio [OR] = 1.82, social OR = 1.60, reputational OR = 1.85, physical OR = 1.67, total OR = 1.93). Hispanic children relative to non-Hispanic White children and those from higher income families were the most strongly and consistently protected from victimization. Boys were more likely to be physically bullied but less likely to be verbally, socially or reputationally bullied than girls. Other variables including disability, cognitively stimulating parenting, academic achievement, and internalizing behavior problems had statistically significant but less consistent and generally weaker relations with frequent victimization.

Keywords

Bullying; victimization; elementary school; risk factors; behavior problems; longitudinal

---

Address correspondence to Paul L. Morgan, Department of Education Policy Studies, 310E Rackley Building, Penn State, University Park, PA 16802; (814) 865-9740; paulmorgan@psu.edu.

Being bullied is a type of school violence in which children experience unwanted and aggressive verbal, social, reputational, or physical behaviors from more powerful peers repeatedly and over time (Arseneault, 2018; Olweus, 1993; Yang et al., 2018). Victims of bullies are more likely to struggle mentally, academically, and physically during school (Gini & Pozzoli, 2013; Ladd et al., 2019; Livingston et al., 2019; Sigurdson et al., 2015). Being bullied may cause depression, anxiety, hyperactivity, disorganization, psychopathologic behaviors, and suicidal ideation (Moore et al., 2017; Schoeler et al., 2018; Silberg et al., 2016; Singham et al., 2017). Victimized children are more likely to display antisocial behavior and substance abuse, experience greater economic hardship, unemployment, and poverty, and to be diagnosed with psychiatric disorders including depression, anxiety, panic disorders, and suicidality (Brendgen & Poulin, 2018; Copeland et al., 2013; Dantchev et al., 2019; Earnshaw et al., 2017; Sourander et al., 2016). These risks are as large as those associated with being placed in foster care or experiencing maltreatment (Zarate-Garza et al., 2017). Being victimized also increases children's risks for becoming bullies themselves (Walters, 2020).

Extant Work's Limitations on Which U.S. Elementary Schoolchildren are More Likely to be Frequently Victimized

Children who are frequently victimized should receive additional supports including possible mental health referrals (Leff & Feudtner, 2017). Screenings and interventions by elementary school may help prevent children from being bullied during middle school (Jankovic & Hunt, 2016). Yet the field's understanding of which U.S. elementary schoolchildren are more likely to be frequently victimized is incomplete. This is because risk and protective factor estimates based on population-based and multi-year-longitudinal cohorts of elementary school-aged children have been largely unavailable. Instead, available studies mostly analyze adolescent samples using cross-sectional designs, with 70% of the studies making no adjustments for confounds (Kljakovic & Hunt, 2016). Evidence of "a robust association between bullying victimization in childhood or adolescence and poor academic achievement," (Moore et al., 2017, p. 69) is mostly based on findings from cross-sectional studies (i.e., 90% of meta-analyzed studies). Studies examining parenting's association with bullying victimization have also mostly used cross-sectional designs (i.e., 89% of meta-analyzed studies) (Lereya et al., 2013). Available studies mostly report overall 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 for specific types of victimization is less known (Kljakovic & Hunt, 2016; Oncioiu et al., 2020). Such unadjusted risk factor estimates may be misdirecting bullying screening and intervention efforts (Moore et al., 2017).

The few studies analyzing samples of elementary school-aged children (Espelage et al., 2015; Haltigan & Vaillancourt, 2014) were only able to assess being bullied subsequent to children entering middle school (Natesan et al., 2018), were analyzed over short time periods (Barker et al., 2008; DePaolis & Williford, 2019; Hellfeldt et al., 2018; Morales et al., 2019; Serdiouk et al., 2015), used no or minimal statistical control (Fogler et al., 2020), analyzed small convenience (Ladd et al., 2017, 2019) or non-U.S. samples (Jansen, Veenstra,

et al., 2011; Jansen, Mieloo, et al., 2016; Ladd et al., 2017; Oncioiu et al., 2020; Pouwels et al., 2019; Rambaran et al., 2020), or were unable to identify risk and protective factors as early as kindergarten (Košir et al., 2019; Malm & Henrich, 2019; Zhang et al., 2019; Zych et al., 2020). Risk factors for specific types of victimization are incompletely understood (Cook et al., 2010; Tippett & Wolke, 2014; Oncioiu et al., 2020; Zych et al., 2019). This is despite growing recognition that physical, verbal, and relational victimization may have unique associations with children's psychological adjustment and so should be examined separately (e.g., Casper & Card, 2017; Ostrov & Kamper, 2015).

Theoretical Framework

We investigated modifiable factors in social contexts associated with and predictive of bullying through analyses grounded in social ecological theory (SET; Bronfenbrenner & Morris, 1998; Hong & Espelage, 2012; Swearer et al., 2012). The SET posits that children are affected by both their immediate physical and social environments and by interactions of systems within these environments. Broader social, political, and economic systems introduce factors experienced by children in the microsystem (e.g., attending segregated schools). Microsystem factors like exposure to deviant peers, unsupportive teachers, and neighborhood disorganization increase the chances of experiencing bullying victimization (Lee et al., 2021). Social contexts are viewed as important contributors to bullying victimization. This is because the lack of social capital or social connectedness experienced by victims results in lower social standing and fewer peer allies, thereby preventing victims from regaining social status (Evans & Smokowski, 2016). Some children may also bully others to gain social status. Bully-victims (i.e., children who are both victims of bullying and who bully others) may attempt to gain social capital by bullying weaker peers. Consistent with SET, in which children's development is influenced by both their individual traits and contexts (Choi et al., 2021), bullying victimization is associated with both child- and family-level factors (Cook et al., 2010; Espelage et al., 2015) including children's academic or behavioral functioning and the quality of parenting that they receive (Cook et al., 2010; Košir et al., 2019; Oncioiu et al., 2020; Pouwels et al., 2019; Turunen et al., 2019). Elementary schoolchildren performing well academically should experience greater social-emotional adjustment as well as higher social status and so may be less likely to be victimized (Morgan et al., 2012; Turunen et al., 2019). In contrast, elementary schoolchildren struggling academically or behaviorally should experience lower social-emotional adjustment, greater peer rejection, and lower social status and so be more likely to be victimized (Bellanti & Bierman, 2000; Morgan et al., 2012; Turunen et al., 2017). Children engaging in externalizing problem behaviors may be more disruptive to the classroom as well as physically or verbally aggressive towards others and so may become socially isolated and bullied (Reijntjes et al., 2011). Anxious or socially withdrawn children may be more likely to be bullied by aggressive children (Reijntjes et al., 2010). Children of parents who are involved, interactive, supportive, warm, and responsive should be less likely to be victims of bullies, although the observed effects are relatively small (Lereya et al., 2013; Rios et al., 2020; Zych et al., 2019). Analyzing to what extent specific types of parenting (e.g., warm versus cognitive stimulating) are relatively more predictive

of children's risks for frequent victimization should help inform intervention efforts in family-based contexts (Lereya et al., 2013).

Potential confounds of observed associations between achievement, behavior, and parenting and children's risks for being frequently victimized include the socio-demographic factors of biological sex, race/ethnicity, disability status, and family income (Hong & Espelage, 2012). Children from families with greater economic resources may be at lower risk for victimization (Tippett & Wolke, 2014; Zych et al., 2019) due to greater social networks, family cohesion, and the status that wealth and the goods it buys may engender in the peer group (Hong et al., 2020). Children with disabilities may be more likely to be victimized due to relatively greater social isolation and fewer communication skills (Rose et al., 2011). Hispanic children may be at relatively lower risk because of their greater access to family and social support networks (Barboza et al., 2009; Gallo et al., 2009). Black children may be at relatively higher risk due to racial animus (Goldbach et al., 2018) and a greater likelihood of attending schools where the majority of students come from low-income families and the neighborhoods are unsafe (Goldweber et al., 2013). However, prior work suggests that victimization patterns among racial and ethnic minority children may be complex. For example, non-Hispanic white and non-Hispanic Black immigrant youth have been found to be more likely than U.S.-born youth in these race/ethnic groups to have been bullied (Maynard et al., 2016). Similar findings were not observed among immigrant and U.S.-born youth who are Hispanic or Asian. Boys may be more likely to experience physical victimization while girls may be more likely to experience verbal, social, or relational victimization (Crick & Grotpeter, 1995; Fujikawa et al., 2021), particularly at younger ages (Casper & Card, 2017). However, other work finds little evidence of sex differences in non-physical victimization (Card et al., 2008; Scheithauer et al., 2006).

Extant studies examining associations between academic achievement, behavior, parenting and children's victimization are largely cross-sectional (Kljokovi & Hunt, 2016; Lereya et al., 2013; Moore et al., 2017; Reijntjes et al., 2011). Whether confounds including lower behavioral self-regulation instead explain associations between children's academic or behavioral functioning by kindergarten and their likelihood of frequent victimization during the upper elementary grades is currently unclear (Nakamoto & Schwartz, 2010; Reijntjes et al., 2010). Whether parenting predicts young children's victimization in longitudinal analyses controlling for potential confounds is also unclear (Oncioiu et al., 2020; Veenstra et al., 2005; Zimmerman et al., 2005). Better estimates of bullying victimization's early risk and protective factors, particularly those that are modifiable, will help inform screening and prevention efforts by an optimal intervention time period (Yeager et al., 2015).

Study's Purpose

To address recently identified limitations in the extant knowledge base including use of convenience samples of adolescents and cross-sectional designs (Kljakovic & Hunt, 2016; Moore et al., 2017), we analyzed a population-based cohort to identify which children were at greater risk for being frequently victimized in U.S. elementary schools. We did so specifically for verbal, social, reputational, or physical victimization as well as these four types of victimization in total. To better identify early risk and protective factors, we

examined kindergarten factors predictive of being frequently victimized during the upper elementary grades. Consistent with prior theoretical and empirical work (Lereya et al., 2013; Morgan et al., 2012; Oncioiu et al., 2020; Reijntjes et al., 2011; Rios et al., 2020; Turunen et al., 2019), we hypothesized that children displaying lower levels of academic or behavioral functioning or receiving lower-quality parenting by kindergarten would be more likely to be frequently victimized in U.S. elementary schools. We further hypothesized that children from specific socio-demographic populations (e.g., those with disabilities or from lower-income families) would be more likely to be bullied (Goldbach et al., 2018; Hong & Espelage, 2012; Tippett & Wolke, 2014). We expected to observe sex-specific risks for victimization in which boys were more likely to be physically bullied while girls were more likely to be verbally, reputationally, or socially bullied (Card et al., 2008; Crick & Grotpeter, 1995). Because of this prior finding and well-known sex differences in male and female peer group dynamics, we also analyzed for victimization's risk and protective factors in separate samples of boys and girls in order to identify any sex-specific risk and protective factors across the victimization types.

Methods

Sample

We analyzed data from the Early Childhood Longitudinal Study: Kindergarten Cohort of 2010-2011 (ECLS-K: 2011), a nationally representative cohort of U.S. children followed from the fall of kindergarten in 2010-2011 until the spring of fifth grade in 2016. The ECLS-K: 2011 followed a three-stage probability sampling process. In the 2010-2011 base year, 18,174 kindergarten children from diverse racial, ethnic, and socioeconomic groups were sampled from 968 schools within 90 geographic areas in the U.S. based on the probability proportional to the population of 5-year-old children. Only those with child assessment data or parent interview data in at least one of the two rounds of data collection in kindergarten were considered as base-year participants. No new children were added to the sample after the base year. The weighted response rates for child assessment were 88.1% and 72.4% in kindergarten and fifth grade, respectively. The corresponding rates for parent interviews were 79.8% and 67.6%, respectively. The differences between unadjusted base-year estimates from kindergarten participants and those from fifth-grade respondents ranged from .03% to 2.43% by student race/ethnicity.

Our analytic sample (*N*=11,780) included 6,040 boys and 5,740 girls. About half of the weighted sample was comprised of children who are White (52%), 11% were children who are Black, 27% were children who are Hispanic, and 10% were children of another (including mixed) race or ethnicity. Twenty-three percent of the sample were reported to have a disability and/or to receive special education services, and 31% of the sample had parents who were unmarried (single, divorced, widowed, or never married). Four percent of the sample had mothers who reported feeling depressed a moderate amount or most of the time during the past week.

Measures

Verbal, Social, Reputational, and Physical Victimization—In the springs of third, fourth, and fifth grade, children were asked about (a) verbal, (b) social, (c) reputational, and (d) physical victimization (Espelage & Holt, 2002). Items included: "During the school year, how often have other kids…" (a) "teased you, made fun of you, or called you names?" (b) "left you out from playing with them on purpose?" (c) "told lies or untrue stories about you?" and (d) "pushed, shoved, slapped, hit, or kicked you?" Children responded using a 5-point scale ranging from "never" to "very often." The four items display good scale reliability (Cronbach's α = .79-.80) as well as divergent validity for separate analyses (rs = .41-.56 in each grade). Children are sensitive reporters of victimization (Averdijk et al., 2016) and self-report is a valid indicator (Bradshaw, 2015). Self-reported victimization shows consistency and predictive validity with cross-informant behavioral measures (Averdijk et al., 2013).

Consistent with conceptualizations of bullying in prior research (Arseneault, 2018; Olweus, 1993; Yang et al., 2018), we were interested in quantifying victimization that frequently occurred. Therefore, we averaged scores for each specific type of victimization across third, fourth, and fifth grade to identify children being frequently victimized. We created total scores by first averaging the scores for all four victimization types together within each grade, and then averaging these scores across third, fourth, and fifth grade. We conservatively considered children within the top 10% of the distribution of these averaged scores as being frequently victimized. A 10% cut off approximates frequent victimization's estimated prevalence (Chen & Cheng, 2013; Currie et al., 2006; Han et al., 2016; Shahrour et al., 2020;Takizawa et al., 2015). Use of a highest 10% operationalization of victimization based on an average of scores is also consistent with prior work (Jackson et al., 2016; Finkelhor et al., 2009). Findings analyses using a less conservative victimization operationalization were consistent with our main findings (Table S3).

Socio-demographic Factors—We recoded children's race and ethnicity (White, Black, Hispanic, or other) from the race and ethnicity composite variable constructed by the ECLS-K: 2011. We used the ECLS-K: 2011's binary composite variable for children's biological sex. We included age in months at the fall of kindergarten achievement assessment, household income, and parental education (i.e., highest grade or year of school completed) as continuous variables. We controlled for whether the child was in an unmarried household and whether parents had felt depressed a moderate amount of time or most of the time during the past week. Disability status was indicated when parents reported "yes" to the child having a disability or school staff reported the child having an Individualized Education Program (IEP) on file in the spring of kindergarten.

Parenting—We included four types of self-reported parenting in kindergarten as predictors of later victimization risks. The <u>emergent literacy activities</u> scale (α = .46) was a standardized sum of five items reported by the parent about their weekly literacy activities. The five items measured how often the parent read both picture books and regular books to the child and for how many minutes as well as the number of books the child had, and how often the child read outside the school. The <u>cognitive stimulation</u> scale (α = .72) was a

standardized composite variable of nine items in kindergarten with a 4-point response scale that assessed how often the parent was involved in activities that might help the child's cognitive growth. Example activities included playing games, practicing reading, writing or working with numbers with the child.

The <u>parent-child activities</u> scale ($\alpha = .65$) was a standardized sum of 18 items reported by parents in kindergarten. Six of the items assessed whether any family member had participated in specific activities over the past month with the child including visiting a library, bookstore, zoo, or aquarium. The other 12 items asked whether the child had ever been involved in specific types of classes, lessons, or programs outside the school. The <u>parental warmth</u> scale ($\alpha = .65$) was a standardized sum of four items from kindergarten parent interview measuring to what extent parents showed affection with their child.

Child Characteristics.—Children's academic achievement was based on measures using item-response-theory-scaling to assess children's reading and mathematics achievement. The measures were based on the National Assessment of Education Progress (NAEP) reading and mathematics frameworks with additional basic items added for early elementary students. The reading achievement measure included: (a) print familiarity, letter recognition, beginning and ending sounds, recognition of common words; (b) decoding multisyllabic words; and (c) vocabulary knowledge and reading comprehension. The mathematics achievement measure assessed conceptual knowledge, procedural knowledge, and problem solving. Both measures consisted of 18 routing items followed by additional questions of either low, middle, or high difficulty. We averaged individually assessed scores of children's general reading and mathematics achievement during the fall of kindergarten. These measures had high reliability during the fall of kindergarten ($\alpha = .92$).

We included teacher ratings of children's externalizing and internalizing problem behaviors and behavioral self-regulation using a modification of the widely used Social Skills Rating System (SSRS; Gresham & Elliot, 1990). Items were rated on a 4-point scale ranging from "never" to "very often." The Externalizing Problem Behaviors subscale included five items indicating aggressive or impulsive behaviors (e.g., argues, fights, acts impulsively, gets angry). The Internalizing Problem Behaviors subscale included four items indicating anxious or withdrawal behaviors (e.g., is the child lonely, sad, or anxious). The Approaches to Learning subscale included seven items that capture how often children displayed behavioral self-regulation (e.g., works independently, easily adapts to changes in routine). These measures displayed strong internal consistency ($\alpha = .88, .79,$ and $.91$, respectively) in the ECLS-K: 2011. Correlations among all study variables are provided in supplementary Table S2.

Analyses

Variables were missing between 0 and 24% of observations $(M = 12.3\%)$. Attrition is common in longitudinal studies (Enders, 2013; Miller & Wright, 1995). We used multiple imputation with 50 imputed datasets to address these missing data (Table S1). We corrected for clustering of students within schools using cluster-robust standard errors and used sampling weights to yield nationally representative estimates. We rounded sample sizes

to the nearest 10 following the ECLS-K: 2011's participant confidentiality procedures. We preregistered the study (https://osf.io/vdufj/) and obtained institutional review board approval. Explanatory variables were measured during kindergarten year. The criterion variables were averaged across third through fifth grade.

We began by calculating descriptive statistics for the analytical samples for the specific types of frequent victimization. Table 1 displays the full analytic sample's descriptive statistics including by race or ethnicity, family socio-economic status, parenting, and academic and behavioral functioning as well as descriptive statistics for the sub-samples of children frequently experiencing the specific types of victimization. We then estimated a series of logistic regression models to identify risk and protective factors by kindergarten predictive of frequent victimization during the upper elementary grades. We adjusted statistical significance levels for multiple comparisons using the Benjamini-Hochberg correction. Table 2 shows the odds ratios (OR) from logistic regression analyses predicting each of the specific types (e.g., physical, verbal) as well as for total victimization. We then estimated these logistic regression models separately for boys and girls. Tables 3 and 4 display these sex-specific analyses.

Results

For each predictor variable in Table 2, we estimated five coefficients measuring the strength, direction, and significance of the relation with each of the four victimization types as well as the total. Five explanatory factors displayed significant coefficients for all five criterion variables. These were Hispanic, male, family income, academic achievement, and externalizing problem behaviors. Hispanic children were less likely than White children to experience verbal (OR = .67, p<.001), social (OR = .51, p<.001), reputational (OR = .67, p<.001), physical (OR = .68, p<.001) or total (OR = .58, p<.001) victimization. Being raised in a higher income family decreased children's risk for verbal (OR = .78, p<.001), social (OR = .73, p<.001), reputational (OR = .82, p = .002), physical (OR = .83, p<.001), or total (OR = .79, p<.001) victimization. Engaging in externalizing problem behaviors increased kindergarten children's risk for verbal (OR = 1.82, p<.001), social (OR = 1.60, p<.001), reputational (OR = 1.85, p<.001), physical (OR = 1.67, p<.001), or total (OR = 1.93, p<.001) victimization. The strongest risk factor for victimization was engaging in externalizing problem behaviors. The strong protective factor was being Hispanic and being from a high-income family.

Boys were more likely than girls to experience physical (OR = 1.38, p<.001) but less likely to experience verbal (OR = .83, p = .018), social OR = .66, p<.001), reputational (OR = .83, p = .020), or total (OR = .82, p = .021) victimization. Greater academic achievement consistently but weakly lowered kindergarten children's risk for being frequently victimized (OR range = .98 to .99, p <.001). We observed less consistent but sometimes significant predictive relations between victimization and disability, behavioral self-regulation, internalizing behavior problems, and cognitively stimulating parenting. Children with disabilities were more likely to experience social (OR = 1.25, p = .018), physical (OR = 1.33, p = .001), and total (OR = 1.39, p = .003) victimization. Greater behavioral self-regulation lowered children's risk for social (OR = .77, p<.001) or

reputational (OR = .83, p = .018) victimization. Children who are Black (OR = 1.48, p < .001) or who were being raised by unmarried parents (OR = 1.44, p < .001) were at greater risk for reputational victimization. Cognitively stimulating parenting somewhat increased children's risk for verbal (OR = 1.15, p<.001), reputational (OR = 1.13, p = .004), physical (OR = 1.12, p = .006), or total (OR = 1.15, p<.001) victimization. Internalizing problem behaviors lowered children's risk for reputational (OR = 0.72, p < .001) and physical (OR = 0.85, p = .027) victimization.

Tables 3 and 4 repeated these analyses for boys and girls separately. The protective relations between Hispanic status and family income and the risk relation with externalizing behavior problems observed for the total sample were also observed separately for boys and girls for the four types of victimization. The regularity of these results for both boys and girls suggest that these three variables are consistent predictors of frequent victimization.

Other findings suggested sex-specific risk factors for frequent victimization. Girls but not boys with more internalizing problem behaviors were at lower risk for reputational (OR = 0.63, p < .001) and total (OR = 0.73, p =.015) victimization. Boys but not girls with disabilities were more likely to experience social exclusion, physical, and total victimization (ORs = 1.32-1.42, ps = .012 to .035). Boys but not girls who experienced cognitively stimulating parenting were significantly more likely to experience verbal (OR = 1.18, p =.009) and total (OR = 1.20, p =.007) victimization. Boys but not girls who are Black were more likely to experience reputational victimization (OR = 1.70, p < .001).

Discussion

We analyzed a population-based cohort to identify which U.S. schoolchildren were more likely to be frequent victims of bullying during the upper elementary grades. Kindergarten children displaying externalizing problem behaviors were consistently at greatest risk for being bullied during 3rd-5th grade. Being Hispanic or raised in a higher income family lowered children's risks for victimization during these grades. We observed these relations for both boys and girls. We also observed some sex-specific and intersectional risk factors for frequent victimization with regards to internalizing problem behaviors, cognitive stimulating parenting, disability status, and race.

Strengths and Limitations

Children who are frequently victimized should be provided with additional supports including possible mental health referrals (Leff & Feudtner, 2017). Despite being a critical time period for bullying screening and prevention (Kljakovic & Hunt, 2016; Yeager et al., 2015), population-based risk and protective factor estimates of which U.S. elementary schoolchildren are more likely to be frequently victimized have been unavailable. Our study adds to the field's knowledge base by reporting multiyear predictive relations and extensive adjustment for potential confounds relative to the very few prior studies analyzing samples of elementary schoolchildren as well as by reporting analyses of specific types of victimization including as stratified by biological sex.

Our study also has limitations. We were unable to analyze data from direct observations. We instead analyzed self-reported victimization. Children can reliably self-report victimization (Connell et al., 2019), which displays good agreement with parent ratings (Demaray et al., 2013). The ECLS-K: 2011's data collection ended in the spring of fifth grade. Our results are not causal. We instead report the extent to which specific factors predict being frequently victimized, conditional on other factors included in the regression models. Measures of self-reported victimization were not administered from kindergarten to second grade in the ECLS-K: 2011. We therefore were unable to control for baseline rates of victimization. However, our analyses controlled for three direct measures of kindergarten behavioral functioning. Victimization has been found to moderately auto-correlate during early childhood (Andrews et al., 2014). We did not analyze data on bullying perpetration. The study's parenting measures displayed moderate inter-item reliability. We included parenting but no other types of contextual factors including of children's school characteristics, which may have moderated some of the study's risk factors (Agirdag et al., 2011; Andrews et al., 2014; Fisher et al., 2015; Vervoort et al., 2010). Experimental studies are needed to conclusively establish that intervening upon the observed risk and protective factors causally results in less frequent victimization. The ECLS-K: 2011 data collection occurred from 2010 through 2016. Data collection during subsequent years might have yielded different findings. Data were collected regarding the biological sex but not the gender identity of participating children.

Contributions and Implications

Consistent with prior studies, we find that externalizing problem behaviors in kindergarten strongly and consistently increase children's risks for being frequently victimized during 3rd-5th grade (Boivin et al., 2013; Oncioiu et al., 2020). Children who experience externalizing problem behaviors tend to be disruptive of activities in classrooms and elsewhere in the school (Hartman et al., 2017). These children may also display poor interpersonal skills and lower social standing, and 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 risks are evident by kindergarten and are 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). Children entering kindergarten already engaging in externalizing problem behaviors may benefit from an early delivery of school-based mental health services addressing their maladaptive behaviors (Boivin et al., 2013; Oncioiu et al., 2020). Externalizing problem behaviors are modifiable through early intervention (Carney et al., 2011). In contrast, results from our study suggest that increasing children's academic achievement and behavioral self-regulation would be expected to lower their risk only slightly for being frequently victimized, particularly for girls (Morgan et al., 2012; Turunen et al., 2019). These findings are consistent with findings reported in recent meta-analytic work (Zych et al., 2019). However, these factors are also modifiable through early intervention (Stockard et al., 2018).

Although prior work has reported that cognitively stimulating parenting lowers children's risk of becoming bullies (Zimmerman et al., 2005), the extent to which such parenting is

associated with the risk of children being victimized by bullies has been less clear. Our results unexpectedly suggest that cognitively stimulating parenting may increase the risk of being bullied, possibly due to the children being perceived as somehow different by their classmates. Consistent with prior empirical work reporting covariate-adjusted estimates, we find that other parenting behaviors display mostly small-to-null relations with children's victimization (Oncioiu et al., 2020; Veenstra et al., 2005; Zimmerman et al., 2005; Zych et al., 2019). We also find that internalizing problem behaviors modestly lower children's risks for being bullied during elementary school. Being anxious or socially withdrawn may only begin to increase the risk for being bullied during adolescence. This is consistent with prior work finding that internalizing problem behavior's relations with bullying victimization are fairly weak during elementary school but strengthen during middle school (Cook et al., 2010; Reijntjes et al., 2010). Our findings are consistent with prior work suggesting that Hispanic children are at lower risk for frequent victimization, possibly because of their greater access to family and social support networks (Barboza et al., 2009; Gallo et al., 2009).

Our results further suggest that early screening and intervention efforts should differentiate the bullying risks experienced by boys and girls. Consistent with analyses of older children (Fujikawa et al., 2021; Varjas et al., 2009), but conflicting somewhat with work reporting bivariate associations (Card et al., 2008; Casper & Card, 2017; Scheithauer et al., 2006), we find that young boys are more likely to be physically bullied while young girls are more likely to be non-physically bullied in analyses adjusted for possible confounds. Boys who are Black or have disabilities are more likely to experience specific types of bullying than girls who are Black or have disabilities. Our work helps to clarify that the greater risk for victimization previously reported among Black adolescents, when attention is restricted to the elementary grades, is specific to reputational victimization experienced by Black boys (Goldweber et al., 2013). Our findings contribute to the extant work by showing that Black children's greater risk for self-reported victimization is not explained by other socio-demographic factors including family socioeconomic status (e.g., Peguero & Williams, 2013). Consistent with recent work (Oncioiu et al., 2020; Tippett & Wolke, 2014; Zych et al., 2019), we find that children from families with greater economic resources are at lower risk for victimization, possibly due to experiencing higher peer group status, greater social networks and family cohesion (Hong et al., 2020). Our findings further clarify that this risk is attributable to family income instead of parental education. Collectively, the study's findings help inform efforts to identify and assist children who are at greater risk for being frequently victimized while attending U.S. elementary schools.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

References

Agirdag O, Demanet J, Van Houtte M, & Van Avermaet P (2011). Ethnic school composition and peer victimization: A focus on the interethnic school climate. International Journal of Intercultural Relations, 35(4), 465–473.

Andrews NCZ, Hanish LD, Fabes RA, & Martin CL (2014). With Whom and Where You Play: Preschoolers' Social Context Predicts Peer Victimization. Social Development, 23(2), 357–375. 10.1111/sode.12051 [PubMed: 24932069]

Arseneault L (2018). Annual Research Review: The persistent and pervasive impact of being bullied in childhood and adolescence: implications for policy and practice. Journal of Child Psychology and Psychiatry and Allied Disciplines, 59(4), 405–421. 10.1111/jcpp.12841 [PubMed: 29134659]

Averdijk M, Eisner M, & Ribeaud D (2012). Method effects in survey questions about peer victimization. April 2019, 425–439.

Averdijk M, Malti T, Eisner M, Ribeaud D, & Farrington DP (2016). A Vicious Cycle of Peer Victimization? Problem Behavior Mediates Stability in Peer Victimization Over Time. Journal of Developmental and Life-Course Criminology, 2(2), 162–181. 10.1007/s40865-016-0024-7

Barboza GE, Schiamberg LB, Oehmke J, Korzeniewski SJ, Post LA, & Heraux CG (2009). Individual characteristics and the multiple contexts of adolescent bullying: An ecological perspective. Journal of Youth and Adolescence, 38(1), 101–121. 10.1007/s10964-008-9271-1 [PubMed: 19636795]

Barker ED, Boivin M, Brendgen M, Fontaine N, Arseneault L, Vitaro F, Bissonnette C, & Tremblay RE (2008). Predictive validity and early predictors of peer-victimization trajectories in preschool. Archives of General Psychiatry, 65(10), 1185–1192. 10.1001/archpsyc.65.10.1185 [PubMed: 18838635]

Bellanti CJ, & Bierman KL (2000). Disentangling the Impact of Low Cognitive Ability and Inattention on Social Behavior and Peer Relationships. Journal of Clinical Child Psychology, 29(1), 66–75. 10.1207/S15374424jccp2901 [PubMed: 10693033]

Boivin M, Brendgen M, Vitaro F, Forget-Dubois N, Feng B, Tremblay RE, & Dionne G (2013). Evidence of gene-environment correlation for peer difficulties: Disruptive behaviors predict early peer relation difficulties in school through genetic effects. Development and Psychopathology, 25(1), 79–92. 10.1017/S0954579412000910 [PubMed: 23398754]

Bradshaw CP (2015). Translating research to practice in bullying prevention. American Psychologist, 70(4), 322–332. 10.1037/a0039114 [PubMed: 25961313]

Brendgen M, & Poulin F (2018). Continued Bullying Victimization from Childhood to Young Adulthood: a Longitudinal Study of Mediating and Protective Factors. Journal of Abnormal Child Psychology, 46(1), 27–39. 10.1007/s10802-017-0314-5 [PubMed: 28608169]

Bronfenbrenner U, & Morris PA (1998). The ecology of developmental processes.

Carney R, Stratford B, Moore KA, Rojas A, & Daneri P (2011). What Works for Reducing Problem Behaviors in Early Childhood: Lessons from experimental evaluations. International Journal of Speech-Language Pathology, 13(1), 1–2. 10.3109/17549507.2010.502245 [PubMed: 21329404]

Casper DM, & Card NA (2017). Overt and relational victimization: A meta-analytic review of their overlap and associations with social-psychological adjustment. Child Development, 88(2), 466–483. 10.1111/cdev.12621 [PubMed: 27709610]

Chen LM, & Cheng YY (2013). Prevalence of school bullying among secondary students in Taiwan: Measurements with and without a specific definition of bullying. School Psychology International, 34(6), 707–720. 10.1177/0143034313479694

Connell NM, Schell-Busey NM, & Hernandez R (2019). Experiences Versus Perceptions: Do Students Agree That They Have Been Bullied? Youth and Society, 51(3), 394–416. 10.1177/0044118X18792437

Cook CR, Williams KR, Guerra NG, Kim TE, & Sadek S (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. School Psychology Quarterly, 25(2), 65–83. 10.1037/a0020149

Copeland WE, Wolke D, Angold A, MRCPsych, & Costello EJ (2013). Adult Psychiatric and Suicide Outcomes of Bullying and Being Bullied by Peers in Childhood and Adolescence. Bone, 70(4), 419–426. 10.1038/jid.2014.371

Crick NR, & Grotpeter JK (1995). Relational Aggression , Gender , and Social-Psychological Adjustment Author (s): Nicki R . Crick and Jennifer K . Grotpeter Published by : Wiley on behalf of the Society for Research in Child Development Stable URL : http://www.jstor.org/stable/1131945. Child Development, 66(3), 710–722. 10.1016/0169-555X(92)90033-K [PubMed: 7789197]

Currie C, Gabhainn SN, Vivian EG, Roberts C, Smith R, Currie D, Picket W, Richter M, Morgan A, & Brnekow V (2006). Inequalities in Young People's Health. World Health, 5, 1–224.

Dantchev S, Hickman M, Heron J, Zammit S, & Wolke D (2019). The independent and cumulative effects of sibling and peer bullying in childhood on depression, anxiety, suicidal ideation, and self-harm in adulthood. Frontiers in Psychiatry, 10(SEP), 1–12. 10.3389/fpsyt.2019.00651 [PubMed: 30723425]

Demaray MK, Malecki CK, Secord SM, & Lyell KM (n.d.). Author ' s personal copy Children and Youth Services Review Agreement among students ', teachers ', and parents ' perceptions of victimization by bullying.

DePaolis KJ, & Williford A (2019). Pathways from Cyberbullying Victimization to Negative Health Outcomes among Elementary School Students: a Longitudinal Investigation. Journal of Child and Family Studies, 28(9), 2390–2403. 10.1007/s10826-018-1104-6

Earnshaw VA, Elliott MN, Reisner SL, Mrug S, Windle M, Emery ST, Peskin MF, & Schuster MA (2017). Peer victimization, depressive symptoms, and substance use: A longitudinal analysis. Pediatrics, 139(6). 10.1542/peds.2016-3426

Enders CK (2013). Dealing With Missing Data in Developmental Research. Child Development Perspectives, 7(1), 27–31. 10.1111/cdep.12008

Espelage DL, Hong JS, Rao MA, & Thornberg R (2015). Understanding ecological factors associated with bullying across the elementary to middle school transition in the United States. Violence and Victims, 30(3), 470–487. 10.1891/0886-6708.VV-D-14-00046 [PubMed: 26118267]

Evans CBR, & Smokowski PR (2016). Theoretical Explanations for Bullying in School: How Ecological Processes Propagate Perpetration and Victimization. Child and Adolescent Social Work Journal, 33(4), 365–375. 10.1007/s10560-015-0432-2

Finkelhor D, Ormrod RK, & Turner HA (2009). Lifetime assessment of poly-victimization in a national sample of children and youth. Child Abuse and Neglect, 33(7), 403–411. 10.1016/j.chiabu.2008.09.012 [PubMed: 19589596]

Fisher S, Middleton K, Ricks E, Malone C, Briggs C, & Barnes J (2015). Not Just Black and White: Peer Victimization and the Intersectionality of School Diversity and Race. Journal of Youth and Adolescence, 44(6), 1241–1250. 10.1007/s10964-014-0243-3 [PubMed: 25524495]

Fogler JM, Weaver AL, Katusic S, Voigt RG, & Barbaresi WJ (2020). Recalled Experiences of Bullying and Victimization in a Longitudinal, Population-Based Birth Cohort: The Influence of ADHD and Co-Occurring Psychiatric Disorder. Journal of Attention Disorders. 10.1177/1087054720969981

Fujikawa S, Mundy LK, Canterfold L, Moreno-Betancur M, & Patton GC (2021). Bullying across late childhood and early adolescence: A prospective cohort of students assessed annually from grades 3 to 8. Academic Pediatrics, 21 (2), 344–351. 10.1016/j.acap.2020.10.011 [PubMed: 33096287]

Gallo LC, Penedo FJ, Espinosa De Los Monteros K, & Arguelles W (2009). Resiliency in the face of disadvantage: Do hispanic cultural characteristics protect health outcomes? Journal of Personality, 77(6), 1707–1746. 10.1111/j.1467-6494.2009.00598.x [PubMed: 19796063]

Gini G, & Pozzoli T (2013). Bullied children and psychosomatic problems: A meta-analysis. Pediatrics, 132(4), 720–729. 10.1542/peds.2013-0614 [PubMed: 24043275]

Goldbach JT, Sterzing PR, & Stuart MJ (2018). Challenging Conventions of Bullying Thresholds: Exploring Differences between Low and High Levels of Bully-Only, Victim-Only, and Bully-Victim Roles. Journal of Youth and Adolescence, 47(3), 586–600. 10.1007/s10964-017-0775-4 [PubMed: 29052118]

Goldweber A, Waasdorp TE, & Bradshaw CP (2013). Examining Associations Between Race, Urbanicity, and Patterns of Bullying Involvement. Journal of Youth and Adolescence, 42(2), 206–219. 10.1007/s10964-012-9843-y [PubMed: 23095907]

Gresham FM, and Elliott SN (1990). Social Skills Rating System. Circle Pines, MN: American Guidance Service.

Haltigan JD, & Vaillancourt T (2014). Joint trajectories of bullying and peer victimization across elementary and middle school and associations with symptoms of psychopathology. Developmental Psychology, 50(11), 2426–2436. 10.1037/a0038030 [PubMed: 25313592]

Han J, Xia J, He Q, Shao Y, Zhan Y, Liu G, & Wang X (2016). A peer victimisation scale based on a behavioural consequences measurement strategy. Singapore Medical Journal, 57(5), 254–261. 10.11622/smedj.2015144 [PubMed: 26768170]

Hartman K, Gresham FM, & Byrd S (2017). Student internalizing and externalizing behavior screeners: Evidence for reliability, validity, and usability in elementary schools. Behavioral Disorders, 42(3), 108–118. 10.1177/0198742916688656

Hellfeldt K, Gill PE, & Johansson B (2018). Longitudinal Analysis of Links Between Bullying Victimization and Psychosomatic Maladjustment in Swedish Schoolchildren. Journal of School Violence, 17(1), 86–98. 10.1080/15388220.2016.1222498

Hong JS, & Espelage DL (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. Aggression and Violent Behavior, 17(4), 311–322. 10.1016/j.avb.2012.03.003

Hong JS, Kim DH, Narvey C, Piquero AR, deLara E, & Padilla YC (2020). Understanding the Link Between Family Economic Hardship and Children's Bullying Behavior. Youth and Society. 10.1177/0044118X20932594

Jansen DEMC, Veenstra R, Ormel J, Verhulst FC, & Reijneveld SA (2011). Early risk factors for being a bully, victim, or bully/victim in late elementary and early secondary education. the longitudinal TRAILS study. BMC Public Health, 11. 10.1186/1471-2458-11-440

Jansen PW, Mieloo CL, Dommisse-van Berkel A, Verlinden M, van der Ende J, Stevens G, Verhulst FC, Jansen W, & Tiemeier H (2016). Bullying and Victimization Among Young Elementary School Children: The Role of Child Ethnicity and Ethnic School Composition. Race and Social Problems, 8(4), 271–280. 10.1007/s12552-016-9182-9

Kljakovic M, & Hunt C (2016). A meta-analysis of predictors of bullying and victimisation in adolescence. Journal of Adolescence, 49, 134–145. 10.1016/j.adolescence.2016.03.002 [PubMed: 27060847]

Košir K, Klasinc L, Špes T, Pivec T, Cankar G, & Horvat M (2019). Predictors of self-reported and peer-reported victimization and bullying behavior in early adolescents: the role of school, classroom, and individual factors. European Journal of Psychology of Education, 35(2), 381–402. 10.1007/s10212-019-00430-y

Ladd GW, Ettekal I, & Kochenderfer-Ladd B (2017). Peer victimization trajectories from kindergarten through high school: Differential pathways for children's school engagement and achievement? Journal of Educational Psychology, 109(6), 826–841. 10.1037/edu0000177

Ladd GW, Ettekal I, & Kochenderfer-Ladd B (2019). Longitudinal Changes in Victimized Youth's Social Anxiety and Solitary Behavior. Journal of Abnormal Child Psychology, 47(7), 1211–1223. 10.1007/s10802-018-0467-x [PubMed: 30123933]

Lee JM, Hong JS, Resko SM, Gonzalez-Prendes AA, & Voisin DR (2021). Ecological correlates of bullying and peer victimization among urban African American adolescents. The Journal of Educational Research, 1–11. 10.1080/00220671.2021.1937914

Leff SS, & Feudtner C (2017). Tackling bullying: Grounds for encouragement and sustained focus. Pediatrics, 139(6). 10.1542/peds.2017-0504

Lereya ST, Samara M, & Wolke D (2013). Parenting behavior and the risk of becoming a victim and a bully/victim: A meta-analysis study. Child Abuse and Neglect, 37(12), 1091–1108. 10.1016/j.chiabu.2013.03.001 [PubMed: 23623619]

Livingston JA, Derrick JL, Wang W, Testa M, Nickerson AB, Espelage DL, & Miller KE (2019). Proximal Associations among Bullying, Mood, and Substance Use: A Daily Report Study. Journal of Child and Family Studies, 28(9), 2558–2571. 10.1007/s10826-018-1109-1 [PubMed: 32269466]

Malm EK, & Henrich CC (2019). Longitudinal Relationships Between Parent Factors, Children's Bullying, and Victimization Behaviors. Child Psychiatry and Human Development, 50(5), 789–802. 10.1007/s10578-019-00882-9 [PubMed: 30850914]

Maynard BR, Vaughn MG, Salas-Wright CP, & Vaughn SR (2016). Bullying Victimization among School-Aged Immigrant Youth in the United States. Physiology & Behavior, 58(2), 337–344. doi:10.1016/j.jadohealth.2015.11.013.

Miller RB, & Wright DW (1995). Detecting and Correcting Attrition Bias in Longitudinal Family Research. Journal of Marriage and the Family, 57(4), 921. 10.2307/353412

Moore SE, Norman RE, Suetani S, Thomas HJ, Sly PD, & Scott JG (2017). Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. World Journal of Psychiatry, 7(1), 60. 10.5498/wjp.v7.i1.60 [PubMed: 28401049]

Morales DX, Prieto N, Grineski SE, & Collins TW (2019). Race/ethnicity, obesity, and the risk of being verbally bullied: A national multilevel study. Journal of Racial and Ethnic Health Disparities, 6(2), 245–253. 10.1007/s40615-018-0519-5 [PubMed: 30062676]

Morgan PL, Farkas G, & Wu Q (2012). Do Poor Readers Feel Angry, Sad, and Unpopular? Scientific Studies of Reading, 16(4), 360–381. 10.1080/10888438.2011.570397 [PubMed: 26180489]

Nakamoto J, & Schwartz D (2010). Is peer victimization associated with academic achievement? A meta-analytic review. Social Development, 19(2), 221–242. 10.1111/j.1467-9507.2009.00539.x

Natesan P, Mitchell ME, & Glover RJ (2018). Early Predictors of Child's Bully and Victim Statuses: A Longitudinal Investigation Using Parent, Teacher, and Student Reports From National Data. Frontiers in Education, 3(June), 1–11. 10.3389/feduc.2018.00048

Oncioiu SI, Orri M, Boivin M, Geoffroy MC, Arseneault L, Brendgen M, Vitaro F, Navarro MC, Galéra C, Tremblay RE, & Côté SM (2020). Early childhood factors associated with peer victimization trajectories from 6 to 17 years of age. Pediatrics, 145(5). 10.1542/PEDS.2019-2654

Ostrov JM, & Kamper KE (2015). Future Directions for Research on the Development of Relational and Physical Peer Victimization. Journal of Clinical Child and Adolescent Psychology, 44(3), 509–519. 10.1080/15374416.2015.1012723 [PubMed: 25751392]

Peguero AA, & Williams LM (2013). Racial and Ethnic Stereotypes and Bullying Victimization. Youth and Society, 45(4), 545–564. 10.1177/0044118X11424757

Pouwels JL, Hanish LHD, Smeekens S, Cillessen AHN, & van den Berg YHM (2019). Predicting the development of victimization from early childhood internalizing and externalizing behavior. Journal of Applied Developmental Psychology, 62(January), 294–305. 10.1016/j.appdev.2019.02.012

Rambaran JA, Dijkstra JK, & Veenstra R (2020). Bullying as a Group Process in Childhood: A Longitudinal Social Network Analysis. Child Development, 91(4), 1336–1352. 10.1111/cdev.13298 [PubMed: 31429084]

Reijntjes A, Kamphuis JH, Prinzie P, Boelen PA, Van Der Schoot M, & Telch MJ (2011). Prospective linkages between peer victimization and externalizing problems in children: A meta-analysis. Aggressive Behavior, 37(3), 215–222. 10.1002/ab.20374 [PubMed: 21433031]

Reijntjes A, Kamphuis JH, Prinzie P, & Telch MJ (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. Child Abuse and Neglect, 34(4), 244–252. 10.1016/j.chiabu.2009.07.009 [PubMed: 20304490]

Rios M, Friedlander S, Cardona Y, Flores G, & Shetgiri R (2020). Associations of Parental Monitoring and Violent Peers with Latino Youth Violence. Journal of Immigrant and Minority Health, 22(2), 240–248. 10.1007/s10903-019-00894-6 [PubMed: 31089909]

Rose CA, Monda-Amaya LE, & Espelage DL (2011). Bullying perpetration and victimization in special education: A review of the literature. Remedial and Special Education, 32(2), 114–130. 10.1177/0741932510361247

Schaefer JD, Moffitt TE, Arseneault L, Danese A, Fisher HL, Houts R, Sheridan MA, Wertz J, & Caspi A (2018). Adolescent Victimization and Early-Adult Psychopathology: Approaching Causal Inference Using a Longitudinal Twin Study to Rule Out Noncausal Explanations. Clinical Psychological Science, 6(3), 352–371. 10.1177/2167702617741381 [PubMed: 29805917]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Scheithauer H, Hayer T, Petermann F, & Jugert G (2006). Physical, verbal, and relational forms of bullying among German students: Age trends, gender differences, and correlates. Aggressive Behavior, 32(3), 261–275. 10.1002/ab.20128

Schoeler T, Duncan L, Cecil CM, Ploubidis GB, & Pingault JB (2018). Quasi-experimental evidence on short- and long-term consequences of bullying victimization: A meta-analysis. Psychological Bulletin, 144(12), 1229–1246. 10.1037/bul0000171 [PubMed: 30475016]

Serdiouk M, Rodkin P, Madill R, Logis H, & Gest S (2015). Rejection and Victimization among Elementary School Children: The Buffering Role of Classroom-Level Predictors. Journal of Abnormal Child Psychology, 43(1), 5–17. 10.1007/s10802-013-9826-9 [PubMed: 24292964]

Shahrour G, Dardas LA, Al-Khayat A, & Al-Qasem A (2020). Prevalence, correlates, and experiences of school bullying among adolescents: A national study in Jordan. School Psychology International, 41(5), 430–453. 10.1177/0143034320943923

Sigurdson JF, Undheim AM, Wallander JL, Lydersen S, & Sund AM (2015). The long-term effects of being bullied or a bully in adolescence on externalizing and internalizing mental health problems in adulthood. Child and Adolescent Psychiatry and Mental Health, 9(1), 1–13. 10.1186/s13034-015-0075-2 [PubMed: 25657818]

Silberg JL, Copeland W, Linker J, Moore AA, Roberson-Nay R, & York TP (2016). Psychiatric outcomes of bullying victimization: A study of discordant monozygotic twins. Physiology & Behavior, 46(9), 1875–1883. 10.1016/j.physbeh.2017.03.040

Singham T, Viding E, Schoeler T, Arseneault L, Ronald A, Cecil CM, McCrory E, Rijsdijk F, & Pingault JB (2017). Concurrent and Longitudinal Contribution of Exposure to Bullying in Childhood to Mental Health: The Role of Vulnerability and Resilience. JAMA Psychiatry, 74(11), 1112–1119. 10.1001/jamapsychiatry.2017.2678 [PubMed: 28979965]

Sourander A, Gyllenberg D, Klomek AB, Sillanmäki L, Ilola AM, & Kumpulainen K (2016). Association of bullying behavior at 8 years of age and use of specialized services for psychiatric disorders by 29 years of age. JAMA Psychiatry, 73(2), 159–165. 10.1001/jamapsychiatry.2015.2419 [PubMed: 26650586]

Stockard J, Wood TW, Coughlin C, & Rasplica Khoury C (2018). The Effectiveness of Direct Instruction Curricula: A Meta-Analysis of a Half Century of Research. Review of Educational Research, 88(4), 479–507. 10.3102/0034654317751919

Swearer SM, Wang C, Maag JW, Siebecker AB, & Frerichs LJ (2012). Understanding the bullying dynamic among students in special and general education. Journal of School Psychology, 50(4), 503–520. 10.1016/j.jsp.2012.04.001 [PubMed: 22710018]

Takizawa R, Danese A, Maughan B, & Arseneault L (2015). Bullying victimization in childhood predicts inflammation and obesity at mid-life: A five-decade birth cohort study. Psychological Medicine, 45(13), 2705–2715. 10.1017/S0033291715000653 [PubMed: 25988703]

Tippett N, & Wolke D (2014). Socioeconomic status and bullying: A meta-analysis. American Journal of Public Health, 104(6), 48–59. 10.2105/AJPH.2014.301960

Turunen T, Kiuru N, Poskiparta E, Niemi P, & Nurmi JE (2019). Word Reading Skills and Externalizing and Internalizing Problems from Grade 1 to Grade 2—Developmental Trajectories and Bullying Involvement in Grade 3. Scientific Studies of Reading, 23(2), 161–177. 10.1080/10888438.2018.1497036

Turunen T, Poskiparta E, & Salmivalli C (2017). Are reading difficulties associated with bullying involvement? Learning and Instruction, 52, 130–138. 10.1016/j.learninstruc.2017.05.007

Varjas K, Henrich CC, & Meyers J (2009). Urban middle school students' perceptions of bullying, cyberbullying, and school safety. Journal of School Violence, 8(2), 159–176. 10.1080/15388220802074165

Veenstra R, Lindenberg S, De Winter AF, Oldehinkel AJ, Verhulst FC, & Ormel J (2005). Bullying and victimization in elementary schools: A comparison of bullies, victims, bully/victims, and uninvolved preadolescents. Developmental Psychology, 41(4), 672–682. 10.1037/0012-1649.41.4.672 [PubMed: 16060813]

Vervoort MHM, Scholte RHJ, & Overbeek G (2010). Bullying and Victimization among adolescents: The role of ethnicity and ethnic composition of school class. Journal of Youth and Adolescence, 39(1), 1–11. 10.1007/s10964-008-9355-y [PubMed: 20091212]

Walters GD (2020). School-Age Bullying Victimization and Perpetration: A Meta-Analysis of Prospective Studies and Research. Trauma, Violence, and Abuse. 10.1177/1524838020906513

Yang C, Sharkey JD, Reed LA, Chen C, & Dowdy E (2018). Bullying victimization and student engagement in elementary, middle, and high schools: Moderating role of school climate. School Psychology Quarterly, 33(1), 54–64. https://psycnet.apa.org/doi/10.1037/spq0000250 [PubMed: 29629789]

Yeager DS, Fong CJ, Lee HY, & Espelage DL (2015). Declines in efficacy of anti-bullying programs among older adolescents: Theory and a three-level meta-analysis. Journal of Applied Developmental Psychology, 37, 36–51. 10.1016/j.appdev.2014.11.005

Zarate-Garza PP, Biggs BK, Croarkin P, Morath B, Leffler J, Cuellar-Barboza A, & Tye SJ (2017). How Well Do We Understand the Long-Term Health Implications of Childhood Bullying? Harvard Review of Psychiatry, 25(2), 89–95. 10.1097/HRP.0000000000000137 [PubMed: 28272133]

Zhang H, Zhou H, & Cao R (2019). Bullying Victimization Among Left-Behind Children in Rural China: Prevalence and Associated Risk Factors. Journal of Interpersonal Violence, 158. 10.1177/0886260519843287

Zimmerman FJ, Glew GM, Christakis DA, & Katon W (2005). Early cognitive stimulation, emotional support, and television watching as predictors of subsequent bullying among grade-school children. Archives of Pediatrics and Adolescent Medicine, 159(4), 384–388. 10.1001/archpedi.159.4.384 [PubMed: 15809395]

Zych I, Farrington DP, & Ttofi MM (2019). Protective factors against bullying and cyberbullying: A systematic review of meta-analyses. Aggression and Violent Behavior, 45(July 2018), 4–19. 10.1016/j.avb.2018.06.008

Zych I, Ttofi MM, Llorent VJ, Farrington DP, Ribeaud D, & Eisner MP (2020). A Longitudinal Study on Stability and Transitions Among Bullying Roles. Child Development, 91(2), 527–545. 10.1111/cdev.13195 [PubMed: 30566232]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

Weighted Means and Standard Deviations of the Predictor Variables for the Total Sample and for Subsamples of Students who Frequently Experience Specific or Total Victimization

	Sample Total N = 11,780		Verbal n = 1,440		Social n = 1,700		Reputational n = 1,670		Physical n = 1,900		Total Victimization n = 1,360	
	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%
White		51.6		48.1		53.2		47.1		49.9		50.3
Black		11.3		18.2		14.6		21.6		16.5		18.2
Hispanic		27.1		24.7		23.2		23.0		23.9		22.1
Others		10.0		8.9		9.0		8.3		9.7		9.3
Male		51.7		52.9		49.2		52.7		62.7		53.6
Age	0.02 (0.98)		−0.02 (1.01)		0.02 (1.02)		0.01 (1.01)		0.02 (1.02)		−0.00 (1.01)	
Disability		22.8		29.0		30.6		27.9		31.5		32.1
Income	−0.03 (1.00)		−0.33 (0.96)		−0.32 (0.96)		−0.33 (0.96)		−0.27 (0.98)		−0.33 (0.96)	
Parent Ed	−0.02 (1.02)		−0.21 (0.91)		−0.19 (0.94)		−0.19 (0.93)		−0.19 (0.95)		−0.22 (0.92)	
Unmarried		30.7		42.0		39.2		45.6		39.6		42.5
Depressed		4.4		7.2		6.5		5.8		6.0		6.5
Early Read	−0.03 (1.00)		−0.05 (1.00)		−0.04 (0.97)		−0.03 (1.01)		−0.11 (0.97)		−0.03 (0.98)	
Cog Stim	0.04 (1.00)		0.07 (1.01)		0.01 (1.01)		0.06 (1.02)		0.03 (1.00)		0.07 (1.00)	
Child Act	−0.03 (1.00)		−0.13 (0.99)		−0.16 (1.05)		−0.12 (0.97)		−0.16 (0.96)		−0.14 (0.96)	
Warmth	−0.01 (1.01)		−0.02 (1.03)		−0.06 (1.05)		−0.01 (1.01)		−0.04 (1.02)		−0.04 (1.05)	
Achieve	0.02 (1.02)		−0.25 (0.91)		−0.23 (0.91)		−0.26 (0.88)		−0.22 (0.92)		−0.26 (0.92)	
Extern	−0.03 (0.96)		0.40 (1.12)		0.34 (1.09)		0.40 (1.13)		0.36 (1.12)		0.45 (1.13)	
Intern	−0.01 (0.99)		0.09 (1.01)		0.12 (1.03)		0.03 (0.99)		0.07 (1.01)		0.07 (0.98)	
Behav. Reg.	0.04 (0.98)		−0.32 (1.00)		−0.32 (0.99)		−0.32 (1.00)		−0.30 (1.01)		−0.35 (1.00)	

Note: Analytic sample sizes for those identified as frequently experiencing bullying victimization based on variables with discrete values and using 10% cut off of the score distribution.

Table 2.

Logistic Regression Coefficients (Odds Ratios) Predicting the Likelihood of Being Among the 10% Most Victimized from 3rd To 5th Grade (Weighted Analyses).

	Verbal		Social		Reputational		Physical		Total Victimization	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Black	1.13	0.87-1.45	0.76+	0.58-0.98	1.48***	1.18-1.87	1.19	0.96-1.47	1.06	0.81-1.39
Hispanic	0.67***	0.53-0.86	0.51***	0.41-0.64	0.67***	0.53-0.84	0.68***	0.55-0.84	0.58***	0.45-0.74
Others	0.87	0.65-1.16	0.75	0.56-1.02	0.87	0.65-1.15	0.96	0.76-1.22	0.89	0.66-1.21
Male	0.83*	0.70-0.97	0.66***	0.56-0.76	0.83*	0.71-0.97	1.38***	1.20-1.59	0.82*	0.70-0.97
Age	0.97	0.89-1.06	1.00	0.93-1.08	1.02	0.95-1.10	0.97	0.90-1.05	0.96	0.88-1.05
Disability	1.17	0.95-1.45	1.25*	1.04-1.50	1.07	0.88-1.30	1.33***	1.12-1.58	1.39**	1.12-1.74
Income	0.78***	0.69-0.88	0.73***	0.65-0.82	0.82**	0.73-0.93	0.83***	0.74-0.93	0.79***	0.69-0.90
Parent Ed	0.97	0.86-1.09	0.95	0.86-1.05	1.01	0.90-1.12	0.95	0.87-1.05	0.92	0.82-1.04
Unmarried	1.10	0.91-1.33	1.02	0.84-1.22	1.44***	1.18-1.75	1.10	0.92-1.31	1.17	0.96-1.42
Depressed	1.53+	1.06-2.22	1.27	0.89-1.81	1.11	0.78-1.59	1.16	0.81-1.65	1.25	0.85-1.85
Early Lit.	1.02	0.92-1.12	1.04	0.95-1.14	1.04	0.95-1.14	0.96	0.88-1.05	1.04	0.95-1.14
Cog Stim	1.15***	1.05-1.26	1.06	0.98-1.15	1.13**	1.04-1.23	1.12**	1.03-1.21	1.15***	1.05-1.26
Child Act	0.94	0.85-1.03	0.93	0.85-1.02	0.95	0.87-1.04	0.95	0.87-1.04	0.94	0.86-1.04
Warmth	1.00	0.92-1.09	0.96	0.89-1.04	1.00	0.93-1.08	0.98	0.90-1.06	0.98	0.89-1.07
Achieve	0.98**	0.97-0.99	0.99**	0.98-1.00	0.98***	0.97-0.99	0.99***	0.98-0.99	0.98**	0.97-1.00
Extern	1.82***	1.56-2.11	1.60***	1.39-1.84	1.85***	1.60-2.13	1.67***	1.46-1.92	1.93***	1.66-2.24
Intern	0.85+	0.72-0.99	0.93	0.80-1.08	0.72***	0.61-0.84	0.85*	0.74-0.98	0.77***	0.65-0.90
Beh. Reg.	0.87	0.74-1.02	0.77***	0.66-0.90	0.83*	0.72-0.97	0.92	0.80-1.06	0.87	0.73-1.02

***
$p < .001$

**
$p < .01$

*
$p < .05$

+
p not significant following Benjamini-Hochberg correction.

Table 3.

Logistic Regression Coefficients (Odds Ratios) Results: 10% Most Victimized Among Males (N = 6,040), Weighted Analyses.

	Verbal		Social		Reputational		Physical		Total Victimization	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Black	1.03	0.72-1.49	0.82	0.58-1.17	1.70***	1.26-2.31	1.05	0.79-1.39	0.98	0.69-1.40
Hispanic	0.68*	0.49-0.93	0.56***	0.41-0.75	0.65**	0.47-089	0.69**	0.53-0.90	0.66*	0.47-0.92
Others	0.55**	0.35-0.87	0.60*	0.39-0.91	0.65+	0.43-0.98	0.83	0.61-1.12	0.67	0.43-1.04
Age	0.91	0.81-1.03	0.92	0.82-1.02	0.99	0.88-1.10	0.95	0.86-1.04	0.91	0.81-1.03
Disability	1.20	0.93-1.57	1.32*	1.04-1.69	1.12	0.88-1.44	1.37**	1.12-1.68	1.42*	1.08-1.88
Income	0.74***	0.63-0.88	0.73***	0.62-0.85	0.85*	0.72-1.00	0.86*	0.74-0.99	0.78**	0.65-0.92
Parent Ed	1.02	0.87-1.20	1.03	0.88-1.20	1.02	0.88-1.18	0.97	0.86-1.10	1.00	0.86-1.18
Unmarried	1.12	0.84-1.49	0.94	0.71-1.23	1.59***	1.21-2.10	1.11	0.88-1.41	1.13	0.85-1.51
Depressed	1.60	0.96-2.69	1.29	0.77-2.18	0.91	0.54-1.52	1.09	0.70-1.70	1.19	0.69-2.06
Early Read	0.97	0.84-1.11	1.02	0.90-1.15	1.05	0.93-1.18	0.95	0.85-1.05	1.00	0.87-1.13
Cog Stim	1.18**	1.04-1.34	1.09	0.97-1.23	1.13	0.99-1.28	1.12+	1.01-1.24	1.20**	1.05-1.36
Child Act	0.95	0.83-1.09	0.93	0.81-1.08	1.00	0.88-1.14	0.97	0.85-1.10	0.96	0.82-1.11
Warmth	1.01	0.90-1.13	0.95	0.85-1.05	1.00	0.90-1.11	0.98	0.89-1.08	0.97	0.86-1.09
Achieve	0.99	0.98-1.00	0.99+	0.97-1.00	0.98***	0.96-0.99	0.99	0.98-1.00	0.98+	0.97-1.00
Extern	1.74***	1.42-2.14	1.49***	1.23-1.80	1.57***	1.31-1.88	1.56***	1.32-1.84	1.79***	1.45-2.20
Intern	0.85	0.69-1.05	0.99	0.79-1.23	0.79+	0.63-0.99	0.87	0.72-1.04	0.80+	0.64-1.00
Beh. Reg.	0.87	0.70-1.09	0.78+	0.62-0.97	0.78+	0.64-0.96	0.93	0.78-1.12	0.85	0.67-1.07

*** $p < .001$

** $p < .01$

* $p < .05$

+ p not significant following Benjamini-Hochberg correction.

Table 4.

Logistic Regression Coefficients (Odds Ratios) Results: 10% Most Victimized Among Females (N = 5,740), Weighted Analyses.

	Verbal		Social		Reputational		Physical		Total Victimization	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Black	1.23	0.86-1.75	0.69+	0.49-0.98	1.24	0.90-1.73	1.40+	1.00-1.95	1.15	0.79-1.66
Hispanic	0.66*	0.46-0.93	0.46***	0.34-0.61	0.67**	0.49-0.90	0.65**	0.48-0.89	0.47***	0.33-0.68
Others	1.24	0.84-1.84	0.88	0.60-1.28	1.10	0.74-1.62	1.17	0.80-1.70	1.12	0.73-1.70
Age	1.06	0.94-1.19	1.10	0.99-1.23	1.07	0.96-1.18	1.02	0.91-1.15	1.04	0.92-1.18
Disability	1.14	0.83-1.57	1.16	0.88-1.53	1.01	0.74-1.37	1.27	0.94-1.70	1.35	0.97-1.87
Income	0.82*	0.70-0.97	0.74***	0.63-0.87	0.80*	0.68-0.95	0.78**	0.65-0.92	0.81*	0.67-0.98
Parent Ed	0.91	0.78-1.07	0.87	0.76-1.00	0.99	0.85-1.14	0.93	0.80-1.08	0.83+	0.70-0.99
Unmarried	1.08	0.83-1.38	1.10	0.86-1.42	1.30	0.99-1.70	1.09	0.83-1.42	1.22	0.92-1.61
Depressed	1.46	0.87-2.46	1.25	0.76-2.05	1.38	0.83-2.30	1.27	0.78-2.09	1.35	0.74-2.44
Early Read	1.07	0.94-1.22	1.06	0.94-1.19	1.01	0.89-1.15	0.98	0.85-1.13	1.08	0.95-1.24
Cog Stim	1.12	0.99-1.26	1.03	0.92-1.16	1.15+	1.02-1.29	1.12	0.99-1.27	1.10	0.97-1.25
Child Act	0.93	0.82-1.05	0.94	0.83-1.05	0.91	0.80-1.03	0.95	0.84-1.08	0.94	0.82-1.07
Warmth	0.99	0.87-1.11	0.97	0.87-1.08	0.99	0.88-1.10	0.97	0.87-1.08	0.98	0.87-1.10
Achieve	0.98**	0.96-0.99	0.99*	0.97-1.00	0.98*	0.97-1.00	0.97***	0.96-0.99	0.98*	0.97-1.00
Extern	1.99***	1.58-2.50	1.80***	1.47-2.21	2.34***	1.88-2.92	1.99***	1.59-2.49	2.22***	1.76-2.79
Intern	0.86	0.68-1.09	0.87	0.70-1.08	0.63***	0.50-0.80	0.84	0.67-1.06	0.73*	0.57-0.94
Beh. Reg.	0.87	0.69-1.10	0.77+	0.62-0.95	0.91	0.73-1.14	0.94	0.76-1.17	0.90	0.71-1.14

***
$p < .001$

**
$p < .01$

*
$p < .05$

+
p not significant following Benjamini-Hochberg correction.