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Children's Bullying Involvement and Maternal Depressive Symptoms

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Abstract

Bullying among school-age children is a public health issue in the United States. Although research and policy recommendations emphasize parental responsibility for preventing and dealing with children's bullying involvement, either as victims or perpetrators, we know little about how parents' mental health is linked to children's bullying involvement. We examine three questions on the association between children's bullying involvement and maternal depressive symptoms: (a) Does children's bullying victimization or perpetration increase maternal depressive symptoms?; (b) Do maternal depressive symptoms increase the risk of children bullying or being bullied by other children?; and (c) Do both directions of the associations vary by maternal education level, a key indicator of parenting resources which may buffer the intergenerational stress proliferation? Using panel data from the U.S. National Institute of Child Health and Human Development Study of Early Child Care and Youth Development ($N=963$), we conduct cross-lagged structural equation models to examine bidirectional associations between children's bullying involvement as victims or perpetrators and maternal depressive symptoms across three years when children were third, fifth, and sixth graders in 2001, 2003, and 2004, respectively. Controlling for concurrent associations among children's bullying victimization, perpetration, and maternal depressive symptoms, children's bullying victimization in third grade increases depressive symptoms for mothers without college degrees in fifth grade, whereas children's bullying perpetration in third grade increases depressive symptoms for mothers with college degrees in fifth grade. Regardless of maternal education levels, maternal depressive symptoms in children's third and fifth grade years increase the odds of children bullying, or being bullied by, other children in subsequent years. These findings underscore the need to take parents' mental health into account to prevent or solve issues concerning children's bullying involvement.

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Author Contribution Statement

Kei Nomaguchi: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing-Original draft, Writing-Review and editing, Visualization, Supervision, Project administration, Funding acquisition

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Keywords

bullying; maternal depression; maternal education; middle childhood; stress proliferation; victimization

1. Introduction

Bullying, defined as unwanted, aggressive behavior that involves a real or perceived power imbalance, is a major problem that is common among school-age children (U.S. Department of Health and Human Services [DHHS], 2018). Bullying can be physical, verbal (e.g., teasing or name-calling), or relational (i.e., behavior meant to hurt someone's reputation or relationships). It can occur during or after school hours; it can happen in the school building, on the playground, on the bus, in the neighborhood, or on the internet (Gladden et al., 2014). Both bullying peers and being bullied by peers can have negative consequences for children's mental health and other developmental outcomes (Gini & Pozzle, 2009; Gini & Pozzoli, 2013; Henrich & Shahar, 2014), which can last into adulthood (Wolke et al., 2013). Since the 1990s, bullying among school-age children has been recognized as a public health issue in the United States (Smokowski & Kopas, 2005). In various anti-bullying initiatives, parents are held accountable for reducing the risk of their children bullying others or becoming victims (Herne, 2016), and are expected to play a central role in bullying prevention through improving their own parenting skills (U.S. DHHS, 2018).

Little research has examined parents' mental health in relation to children's bullying involvement (Harcourt et al., 2014). There are a few reasons to think that such research would be necessary, however. First, as Herne (2016) noted, the growing emphasis on parental responsibility for children becoming bullies or victims reflects today's parenting norms, which stress individual parents', especially mothers', responsibilities for every aspect of proper child development (Hays, 1996). Research has suggested that any signs of problems that children show can signal "failed" parenting and thus can become major emotional burdens for parents (Elliot & Bowen, 2018; Wall, 2018). Children's bullying involvement, either as victims or perpetrators, can be a substantial stressor that affects parents' mental health, as it is a high-stakes public health issue. Second, alternatively, it is possible that parents' poor mental health is contributing to children's subsequent bullying involvement. Past research has found that parents' depressive symptoms can create a stressful environment for children, who, in turn, may exhibit externalizing (e.g., aggression) or internalizing (e.g., depression) problems (Meadows et al., 2007; Turney, 2011, 2012). In either case, research that scrutinizes the association between children's bullying involvement and parents' mental health is vital to better understand how to reduce bullying issues among children.

Our first goal was to examine the bidirectional associations between children's bullying involvement—victimization and perpetration—and maternal depressive symptoms when children were third, fifth, and sixth graders, using longitudinal data from a U.S. panel survey collected in 2001, 2003, and 2004. We focused on mothers because data on fathers in the survey were limited. In the survey, questions regarding children's bullying perpetration

focused on relational bullying, whereas questions regarding victimization covered verbal, relational, and physical bullying. Locations where bullying occurred were not specified. Our second goal was to examine whether the associations between children's bullying involvement and maternal depressive symptoms varied by maternal education level. Research on social stress has emphasized that individuals' vulnerability to stressors varies by socioeconomic status (SES), in part because individuals with a higher status have more resources that they can use to cope with the stressors (Pearlin & Bierman, 2013). Of several indicators of SES, we focused on maternal education, because a college degree has become a key indicator of disparities in mothers' financial, social, and personal resources that can affect mothers' mental health as well as parenting experiences (Lareau, 2011; Mirowsky & Ross, 2003; Putnam, 2015). We expected that the effects of children's bullying victimization or perpetration on maternal depressive symptoms, as well as the effects of maternal depressive symptoms on children's bullying victimization or perpetration, were less pronounced for mothers with college degrees than for mothers without college degrees.

2. Background

The concept of *stress proliferation* in the stress process model guided us to expect that there would be a link between children's bullying involvement, either as victims or perpetrators, and maternal mental health (Pearlin & Bierman, 2013). Stress proliferation refers to the situation where a stressful circumstance in one life domain transmits into a stressful circumstance in another life domain. The same phenomenon is also called stress spillover, stress crossover, and stress contagion (e.g., Barr et al., 2018). Whereas a transmission of a stressor can occur within individuals as well as between individuals, the present analysis focused on the latter, specifically, intergenerational stress proliferation between mothers and children. We first considered children's bullying victimization or perpetration as the primary stressor which would increase maternal depressive symptoms; and then considered the reverse direction of stress proliferation—maternal depression as the primary stressor that would lead to children's bullying victimization or perpetration, as follows:

2.1. Children's bullying involvement as a stressor affecting maternal depressive symptoms

Research that examined the effects of children's bullying involvement on parents' mental health has been scarce (Harcourt et al., 2014). Yet, a small, growing number of qualitative studies, conducted in Canada (Mishna, 2004; Sawyer et al., 2011), Australia (Humphrey & Crisp, 2008), and the United States (Brown et al., 2013), revealed various emotional tolls of parents whose children have been bullied at school. Many parents were surprised to know that their children were being bullied (Humphrey & Crisp, 2008; Sawyer et al., 2011). Parents were concerned about the negative effects of being bullied on their children's academic performance as well as emotional well-being (Brown et al., 2013; Humphrey & Crisp, 2008; Sawyer et al., 2011). Many parents felt responsible for helping children deal with bullies, but felt helpless because it was hard to get information about what to do (Brown et al., 2013; Humphrey & Crisp, 2008). Disappointment with school officials' responses was another common experience. Teachers tended to suspect issues at home, such as ineffective parenting, as a primary cause of children's being bullied (Brown et al., 2013;

Mishna, 2004; Sawyer et al., 2011). Little research has investigated parents' experiences of children's bullying perpetration. A related line of research has found that mothers of children with aggressive behaviors experienced self-blame, social isolation, and distress as they struggled with making sense of their children's problems (Beernink et al. 2012; Moses, 2010). Studying the effects of children's criminality on mothers, Sturges and Hanrahan (2011) found that mothers experienced various stressors, including blaming themselves for their children's misconduct, feeling as if they were judged harshly by others, and facing their children's refusal to receive any help. In all, these past research findings led to our first hypothesis:

Hypothesis 1. Children's bullying involvement, either as victims or perpetrators, would be related to increased maternal depressive symptoms.

2.2. Maternal depressive symptoms as a stressor affecting children's bullying involvement

Alternatively, children's bullying involvement could be a consequence of mothers' depression. Research has documented that maternal depression is a primary stressor for children that can be manifested in children's developmental outcomes. Using data from the Fragile Families and Child Wellbeing Study (FFCWS), Meadows and colleagues (2007) found that maternal depression when children were one year old was related to children's internalizing and externalizing problems two years later, controlling for children's temperament at age one. Also using the FFCWS, Turney (2011, 2012) found that maternal depression when children were one, three, or five years old was related to children's internalizing and externalizing problems when children were five years old, although the author did not control for earlier measures of children's respective problems. Some research found that children's having internalizing problems increased the risk of becoming bullies or victims (Fekkes et al., 2006), suggesting a link from maternal depression to children's bullying involvement through increasing children's depression. Other research suggested the link through ineffective parenting: mothers with depressive symptoms were more likely than mothers without such symptoms to be less supportive, less responsive, less engaged, or harsher when they interacted with children (Turney, 2012); and these parenting characteristics were related to higher odds of children getting involved in bullying either as victims or perpetrators (Lereya et al., 2013; Smokowski & Kopas, 2005). Yet, little research focused on examining the link between maternal depression and children's bullying involvement. For an exception, using a convenience sample of 4th to 6th graders in Greece, Georgiou (2008) found that maternal depression was related to children's bullying perpetration and victimization. The study was cross-sectional; thus a causal relationship was unclear. Drawing on these past studies, we stated our second hypothesis:

Hypothesis 2. Mothers' depressive symptoms would be related to children's subsequent bullying victimization and perpetration.

2.3. Variation by maternal education level

We examined whether the effects of children's bullying victimization and perpetration on maternal depressive symptoms varied by maternal education. The role of higher education in

buffering the effects of stressors on mental health has been documented: College graduates are more likely than adults without college degrees to have more financial resources, social support, and personal resources (e.g., self-efficacy), all of which help them get through stressful situations (Mirowsky & Ross, 2003). Besides having greater financial resources to invest in helping children deal with bullying issues, as victims or perpetrators, parents with higher education have greater vocabularies and are familiar with terms that professionals use, which may help them demand school officials' attention to their children's needs (Lareau, 2011; Putnam, 2015). In general, parents with college degrees are more likely than parents with less education to feel comfortable with intervening in children's school matters, because they see themselves as equal to or greater in status than teachers and school administrators (Calarco, 2014). These resources may help mothers deal with stressful circumstances that they may experience in the face of their children's bullying victimization or perpetration. These research findings led to our third hypothesis:

Hypothesis 3. The effects of children's bullying victimization and perpetration on maternal depressive symptoms would be weaker for mothers with college degrees than mothers without college degrees.

Similarly, the effects of maternal depressive symptoms on children's bullying involvement might be weaker for mothers with college degrees than mothers without college degrees. Mothers with college degrees are more likely than mothers without college degrees to be able to afford enrolling their children in high-quality schools, after-school care, or extracurricular activities, where children can learn skills, such as how to be a team player and how to accept defeat or winning, and can also foster self-confidence (Lareau, 2011). These skills and self-concepts can help children avoid getting involved in bullying either as victims or bullies (Smokowski & Kopas, 2005). Thus, even when their mothers suffer from depression and are unable to teach them these skills, children of mothers with college degrees are more likely than children of mothers without college degrees to gain these skills and traits outside the home (Augustine & Crosnoe 2010). Past empirical findings were mixed. Turney (2011), using the FFCWS, found little difference by maternal education in the effects of maternal depression on children's internalizing and externalizing problems. In contrast, although they examined educational outcomes, not emotional or behavioral outcomes, Augustine and Crosnoe (2010), using the SECCYD, found that maternal education buffered the negative effects of maternal depression when children were 54 months old on children's reading and math skills at first, third, and fifth grades. On the basis of the foregoing conceptual arguments on differential resources by education, we stated our fourth hypothesis:

Hypothesis 4. The effects of maternal depressive symptoms on children's bullying victimization and perpetration would be weaker for mothers with college degrees than mothers without college degrees.

3. Method

3.1. Data and sample

Data were drawn from the U.S. National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). The SECCYD is a panel study of 1,364 children and their families, which was originally designed to examine the effects of non-maternal child care in early childhood on child development. The study began in 1991 when families of newborns were recruited from hospitals in 10 cities in 9 states in the United States (NICHD Early Child Care Research [NICHD ECCRN], 2005). The SECCYD collected information about the focal children's bullying involvement and maternal mental health when these children were in third (G3), fifth (G5), and sixth (G6) grades in 2001, 2003, and 2004 respectively. For the present analysis, we selected cases where mothers participated in all of the three surveys ($N = 963$). Although it included children with diverse backgrounds living across the country, the SECCYD was not a nationally representative sample of children. Because of the exclusion of disadvantaged groups, such as mothers under 18 years old, mothers not fluent in English, mothers with substance abuse problems, and families living in dangerous neighborhoods, families in the SECCYD sample were more economically advantaged than their counterparts in the general U.S. population, as reflected in higher levels of maternal education and family income, and a higher percentage of non-Hispanic White children and a lower percentage of Hispanic children. In addition, those who remained in the analytical sample were more likely than those who dropped out to be White, married, and more educated. Still, the SECCYD provided the best available data for the present analysis, particularly because of its collection of information about children's bullying perpetration.

3.2. Measures

3.2.1. Dependent and independent variables—*Maternal depressive symptoms* were measured as a modified version of the Center for Epidemiological Studies Depression Scale (CES-D, Radloff, 1977), which was the sum of scores for 20 questions ($\alpha = .91, .90$, and $.91$ at G3, G5, and G6 respectively) that asked mothers how often they felt sad, felt lonely, felt depressed, talked less, and so forth than usual during the previous week (0 = *less than once a week*, 1 = *1–2 days a week*, 2 = *3–4 days a week*, 3 = *5–7 days a week*). The scale ranged from 0 to 60.

Children's bullying involvement was measured as two scales based on mothers' reports that were developed to examine elementary school children's bullying involvement (U.S. DHHS, 2010). *Children's bullying perpetration scale* was the average score for six questions ($\alpha = .74, .75$, and $.78$ at G3, G5, and G6 respectively) adapted from the Children's Social Behavior Scale—Teacher Form (Crick 1996). The wording of the questions were modified for administration for parents. These six questions included: (a) "When mad at a peer, my child gets even by excluding the peer from the group"; (b) "My child spreads rumors or gossips about some peers"; (c) "When angry at a peer, my child tries to get other children to stop playing with that child"; (d) "When mad at a peer, my child ignores or stops talking to that child"; (e) "My child threatens to stop being someone's friend in order to hurt that child or to get what is wanted from that child"; and (f) "My child tries to exclude certain peers

from group activities” (0 = *not true*, 1 = *sometimes true*, 2 = *often true*). *Children’s bullying victimization scale* was the average score for seven questions ($\alpha = .89, .91$, and $.91$ at G3, G5, and G6 respectively) which were modified items of the Peer Victimization Scale (Kochenderfer & Ladd, 1996), including (a) “My child is ridiculed by peers”; (b) “My child is picked on by other children”; (c) “My child is called names by peers”; (d) “My child is pushed around by other children”; (e) “Peers say negative things about him/her to other children.”; (f) “My child is teased or made fun of by peers”; (g) “My child is hit or kicked by other children” (0 = *not true*, 1 = *sometimes true*, 2 = *often true*). These scales were used in prior research (e.g., Agee & Crocker, 2016; Henrich & Shahar, 2014).

In the SECCYD, in addition to mothers’ reports we described above, children’s self-reports, using items from the Child’s Behavior Scale (Ladd & Profilet, 1996) and the Peer Victimization Scale (Kochenderfer & Ladd, 1996), as well as teachers’ reports, using the Children’s Social Behavior Scale—Teacher Form (Crick, 1996), were available to measure children’s bullying involvement. In supplemental analyses (not shown), we found that these three reports were inconsistent with one another: Mothers were more likely than children or teachers to report their children’s bullying perpetration, whereas children were more likely than mothers or teachers to report having been bullied. These patterns of discrepancies were consistent with prior research in that children might not perceive their own treatment of peers as bullying (Bouman et al., 2012); children might not always tell adults that they were being bullied (Mishna et al., 2006). We decided to use mothers’ reports for a few reasons. First, teachers’ reports had a large percentage of missing cases (40%), which gave us less confidence about how to interpret the findings. Second, a very small percentage of children (less than 5% in the full sample) reported bullying peers, whereas more than half of children reported being bullied. In particular, the sample size of children of mothers with college degrees who reported bullying peers was too small ($n = 30$ at G3, $n = 27$ at G5 and $n = 24$ at G6) for the current analysis. Third, Hymel and Swearer (2015) argued that selection of a measure should depend on the nature of research. A major purpose of the present analysis was to examine the effects of children’s bullying involvement on maternal mental health, a rarely examined, important question, although we also examined the reverse causation. For this purpose, mothers should be aware of their children’s bullying involvement. Altogether, we concluded that mothers’ reports would be most appropriate for the purpose of the present analysis.

One concern might be that depressed mothers might evaluate their children’s behaviors in a negative light. To investigate this possibility, we divided mothers into two groups by depression status with the cut-off score of “16” in the CES-D (Radloff, 1977) and compared means for the mother-teacher gap in reporting children’s bullying involvement between the two groups, using t-tests (not shown). The mother-teacher gap in reporting children’s victimization, but not children’s perpetration, was higher among depressed mothers than non-depressed mothers ($p < .05$). Note that as we discussed earlier, 40% did not have teachers’ reports. As we would describe in the analytical plan section, we controlled for concurrent associations among children’s bullying victimization, perpetration, and maternal depressive symptoms as well as the reverse causation from maternal depression to children’s bullying involvement to eliminate reporting bias due to maternal depression status.

Another debate regarding measuring children's bullying involvement centered on the possibility that it could be mutual—i.e., children who report being victimized could also be perpetrators (Hymel & Swearer, 2015). We conducted supplemental analyses (not shown) where we separated bully-victims from bullies and victims. We first created a dichotomous variable indicating bullying perpetration where children whose mothers answered “not true” for five or all the six questions on children's bullying perpetration were coded 0 and children whose mothers responded “not true” for four or fewer questions were coded 1. We also created a dichotomous variable indicating victims where children whose mothers answered “not true” for six or all of the seven questions on children's bullying victimization were coded 0 and children whose mothers answered “not true” for five or fewer questions were coded 1. Using these two dichotomous variables, we created four dummy variables, including (a) *bullies*, (b) *bully-victims*, (c) *victims*, and (d) *no bullying involvement* (reference). Similar approaches were used to categorize children into these four types of bullying involvement (e.g., Schafer & Ferraro, 2011). After all, however, we decided to present results using the perpetration and victimization scales rather than these dummy variables, because complementary fit indices suggested that the overall fit of the model did not reach the recommended adequate level of RMSEA .08 (for complementary fit indices, see the analytical plan section). Still, we reported some of the results from these supplemental analyses, which separated bully-victims from bullies and victims, to help interpret the current findings.

3.2.2. Moderator variable—*Mother's education* at the birth of the focal child was a dichotomous variable where mothers who had a 4-year college degree or higher were coded 1, whereas mothers who did not have a 4-year college degree (including less than high school, high school diploma, and some education beyond high school) were coded 0.

3.2.3. Control variables—All analyses were controlled for background characteristics that were found in prior research to be related to children's bullying involvement, maternal mental health, and maternal education, which included: maternal age (Turney, 2012), race/ethnicity (Goldweber et al., 2013; Turney, 2012), marital status (Meadows et al., 2007; Turney, 2012), family income (Mirowsky & Ross, 2003), paid work hours (Mirowsky & Ross, 2003), the number of children in the household (Turney, 2012), and the child's gender (Hymel & Swearer, 2015; Turney 2011).

Mothers' age at the birth of the focal child was measured in years. *Mothers' race/ethnicity* was measured as three dummy variables including White (reference), Black, and Hispanic or other race. *Mother's partnership status* (G3, G5) was a dichotomous variable (0 = *married or cohabiting*, 1 = *single*). There were too few cohabiting mothers among the college graduates to make a separate group from the married. *The number of children in the household* (G3, G5) was an ordered variable, ranging from 1 to 7. *Family income* (G3, G5) was a continuous variable composed by the SECCYD that included mothers' and their spouse's or partner's annual income from all jobs. We converted the unit to be in thousands. *Mother's weekly paid work hours* (G3, G5) was the number of hours per week mothers usually worked at the time of interview. The focal child's gender was a dichotomous variable (0 = *boys*, 1 = *girls*).

3.3. Analytical plan

We used cross-lagged structural equation models (SEM) to examine the potential reciprocal causal effects (Finkel, 1995). The conceptual model is presented in Figure 1. For the sake of simplicity, we did not present control variables in the figure, but the model controlled for mothers' age at the child's birth, race-ethnicity, education, weekly work hours (G3, G5), family income (G3, G5), marital status (G3, G5), the number of children (G3, G5), and the child's gender. Our primary focus was on the causal path from each form of children's bullying involvement at G3 and G5 to maternal depression at G5 and G6 respectively, for which a (for perpetration) and b (for victimization) represented in the figure (Hypothesis 1). Our second focus was on the causal path from maternal depression at G3 and G5 to each form of children's bullying involvement at G5 and G6 respectively, for which c (for perpetration) and d (for victimization) represented in the figure (Hypothesis 2). We simultaneously estimated cross-lagged paths from G3 to G5 and from G5 to G6 in one model because multi-wave panel models were able to handle more complex models with measurement errors and provide better information about the fit of the model than two-wave models (Finkel, 1995). In supplemental analyses (not shown) we examined the cross-lagged paths from G3 to G5 and from G5 to G6 separately and obtained similar patterns of the findings.

There were two other causal paths in the model (Figure 1). First, some research suggested that there was a continuity in children's bullying perpetration, victimization, and maternal mental health across years (Barr et al. 2018; Scholte et al., 2007). Thus, we included causal paths from these measures at G3 and G5 to their respective measures at G5 and G6, respectively. Second, we specified causal paths from perpetration at G3 and G5 to victimization at G5 and G6, respectively, and causal paths from victimization at G3 and G5 to perpetration at G5 and G6, respectively, because some research suggested that bullies might become victims; and victims might become bullies over time (Veemstra et al., 2005). Finally, concurrent associations (shown as curved double-headed arrows in the figure) among children's bullying perpetration, victimization, and maternal depressive symptoms were included to control for mothers' reporting bias due to their mental health state. Also we added concurrent associations between children's bullying behavior and victimization because, as discussed in the measures section, these two behaviors could be mutual. We found that adding these correlations to the model improved the overall fit of the model.

To deal with missing data, we used the full information maximum likelihood (FIML) estimation of the PROC CALIS procedure in SAS (Yung & Zhang, 2011). Several complementary fit indices were used to assess the overall fit of the model, including the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA). The CFI greater than or equal to .90 indicates a good fit to the data (Bentler, 1990). The RMSEA less than or equal to .08 is an adequate fit and less than .05 is a good fit (Browne & Cudeck, 1992).

To examine variation by maternal education (Hypotheses 3 and 4), we conducted multi-group models with statistical tests to see whether the parameters in the SEMs were different between mothers with and without college degrees (SAS Institute, 2018). The test results suggested that some of the parameters for these two samples were significantly different. We

presented results for the full sample (Hypotheses 1 and 2) as well as for the two education groups separately (Hypotheses 3 and 4).

4. Results

4.1. Descriptive results

Table 1 presents descriptive statistics for the variables in the analyses. For the full sample, the average age of mothers at the focal child's birth was 28.7 years old. Eighty-two percent were White, 11% were Black, and 7% were Hispanic or other races. Forty percent of mothers had a 4-year college degree or higher. Supplemental analyses (not shown) indicated that 6% did not complete high school, 21% had a high school diploma, 33% had some education beyond high school, 23% had a 4-year college degree, and 17% had an advanced degree.

The mean scores for children's bullying perpetration and victimization at all three grades suggested that mothers were more likely to report their children's bullying perpetration than victimization. In supplemental analyses where bully-victims were separated from bullies and victims (not shown), the distribution of children's bullying involvement was 16% bullies, 13% bully-victims, 13% victims, and 58% no involvement at G3; it was similar at G5 and G6.

Means for many of the variables were significantly different between mothers with and without college degrees. For example, the average scores for maternal depressive symptoms were higher for those without college degrees than those with college degrees at all three grades. The average scores for children's bullying perpetration and victimization were higher for mothers without college degrees than mothers with college degrees at all three grades. In their meta-analyses of prior research findings, Tippet and Wolke (2014) found a slightly lower prevalence of victimization and perpetration among children from families with higher SES than children from families with lower SES; yet, the authors emphasized that differences in children's bullying involvement, especially perpetration, by SES were very small.

4.2. SEM results

Table 2 presents a summary of the findings from cross-lagged SEMs. For the full sample, the CFI suggested that the model was a good fit to the data, whereas the RMSEA suggested an adequate fit ($\chi^2 = 167.67$; $df = 33$; CFI = .984; RMSEA = .065). The causal path from children's bullying perpetration to maternal depressive symptoms was significant for the G3 – G5 path ($b = 1.716$, $p < .05$), but only marginally significant for the G5 – G6 path ($b = 1.476$, $p < .10$). The effect sizes were .20 and .17 respectively, which indicate small effects (Cohen, 1988). For the effects of children's bullying victimization on maternal depressive symptoms, the G3 – G5 path was significant ($b = 1.883$, $p < .05$) with the effect size of .38 (medium effects), although the G5 – G6 path was not significant. Hypothesis 1 was supported for the G3 – G5 path for both perpetration and victimization, but not for the G5 – G6 path. For the reverse causation, the causal paths from maternal depressive symptoms to children's bullying perpetration and victimization were significant for both of the G3 – G5

and G5 – G6 paths, although the effect sizes were very small ($f = .01$) for all of the four paths. Hypothesis 2 was supported.

Turning to the results from the models conducted separately by maternal education, for mothers without college degrees, the CFI suggested a good fit and the RMSEA suggested an adequate fit to the data ($\chi^2 = 139.76$; $df = 33$; CFI = .977; RMSEA = .075). The model fit statistics for the college-educated was a little better ($\chi^2 = 67.70$; $df = 33$; CFI = .983; RMSEA = .052). We first looked at the causal paths from children's bullying involvement to maternal depressive symptoms. For mothers without college degrees, the only significant causal path was the one from children's *victimization* at G3 to maternal depressive symptoms at G5 ($b = 3.472$, $p < .001$) with a medium effect size ($f = .38$). Notably this path was not significant for mothers with college degrees. Supplemental analyses that separated bully-victims from victims suggested that children's victimization, regardless of whether they were bully-victims or victims, increased depressive symptoms for mothers without college degrees (data not shown). For mothers with college degrees, the causal path from children's bullying *perpetration* at G3 to maternal depression at G5 was significant ($b = 3.534$, $p < .001$) with a large effect size ($f = .51$). Supplemental analyses that separated bully-victims from bullies suggested that children's being bullies, but not being bully-victims, increased depressive symptoms for mothers with college degrees (not shown). Children's bullying involvement at G5 was not related to maternal depressive symptoms at G6. All in all, Hypothesis 3, which stated that the effects of children's bullying involvement on maternal depression would be weaker for more educated mothers, was supported for the effects of children's victimization at G3 on maternal depressive symptoms at G5 only. Contrary to Hypothesis 3, the effects of children's bullying perpetration on maternal depressive symptoms were more pronounced among mothers with higher education.

Now looking at the reverse causation, we found that for mothers without college degrees, the effects of maternal depressive symptoms on children's bullying victimization and perpetration were all significant except for the path from maternal depression at G3 to children's perpetration at G5. The effect sizes were very small ($f = .01$), however. For mothers with college degrees, none of the causal paths from maternal depression to children's victimization and perpetration were significant. Yet, the tests of differences in the coefficients between the two education groups were not significant. Thus, we concluded that there was little difference in the effects of maternal depression on children's bullying victimization and perpetration by maternal education level, which did not support Hypothesis 4. Supplemental analyses that separated bully-victims from bullies and victims suggested that maternal depression in earlier waves increased the odds that children would be bully-victims, but not bullies or victims, in subsequent years (not shown).

4.3. Supplemental analysis

To understand the findings better, we conducted additional supplemental analyses (not shown). First, we examined whether any of the associations between children's bullying perpetration or victimization and maternal depression found earlier would disappear when the mother-child relationship quality, measured by mothers' reports using the Adult-Child Relationship Scale (Marceau et al., 2015), was controlled for; and found little change in the

results presented earlier. Second, we examined whether any of the associations between children's bullying perpetration or victimization and maternal depression found earlier would disappear when children's aggressive behavior and depression were controlled for, using measures of children's internalizing and externalizing problems from the Child Behavior Checklist (Achenbach, 1991). Children's bullying perpetration at G3 was related to children's internalizing and externalizing problems at G5, both of which were related to maternal depression at G5. Children's victimization at G3 was not related to children's internalizing or externalizing problems at G5. Maternal depression at G3 was related to children's internalizing and externalizing problems at G5, both of which were related to bullying perpetration and victimization at G5. When children's internalizing and externalizing problems were included in the model, the magnitude of the associations between children's bullying involvement and maternal depression found earlier became weaker ($p < .10$). These results suggest that the associations between children's bullying involvement and maternal depression were in part through children's increased internalizing and externalizing problems. Finally, we examined the same models using children's self-reports of bullying involvement. As we mentioned earlier, because of the very small sample size of children of mothers with college degrees who reported bullying others, we conducted the analysis for the full sample only. We found that no significant effects of children's bullying perpetuation or victimization on maternal depression, whereas maternal depression at G3 and G5 were related to children's victimization, but not perpetration, at G5 and G6 respectively. We were unable to determine whether differences in findings between mothers' and children's reports were due to mothers' reporting biases.

5. Discussion

Although research and policy recommendations have increasingly emphasized parents' responsibility for preventing and dealing with children's bullying involvement, how children's bullying involvement affects parents' mental health has been rarely investigated. The main purpose of this paper was to examine the effects of children's bullying involvement, as victims or perpetrators, on maternal depressive symptoms, while taking into account the reverse causation: the effects of maternal depressive symptoms on children's bullying victimization and perpetration. Following prior findings of the role of education in buffering the effects of stressors on mental health, we expected that both directions of the associations would be weaker for mothers with college degrees than mothers without college degrees.

Our findings suggest that children's bullying *victimization* in third grade increased maternal depressive symptoms in fifth grade, controlling for concurrent associations between these two factors, the reverse causal direction, and other background characteristics. This is consistent with prior findings of qualitative studies which have found that parents of children who were bullied were concerned, frustrated, and felt helpless while trying to help their children find appropriate ways to respond to bullies and seek help from school officials (Brown et al., 2013; Mishna, 2004; Sawyer et al., 2011). As we predicted, the effects of children's bullying victimization on maternal depressive symptoms were more prevalent among mothers with less education. Parenting research has shown that parents without college degrees tend to see teachers as their social superiors and avoid intervening in

children's school issues (Calarco, 2014; Lareau, 2011). Parents with less education may be more likely than college-educated parents to find it difficult to reach out to school officials for help regarding their children's victimization. Future research is warranted to investigate what may help parents deal with their children's bullying victimization especially for those with lower SES.

Another key finding is that children's bullying *perpetration* in third grade increased maternal depressive symptoms in fifth grade. Research, as well as policy discussions, has rarely focused on the experiences of parents of children who bully other children (Harcourt et al., 2014; Herne, 2016). Research in related areas, however, has shown that mothers suffer from children's aggressive behaviors or illegal acts (Beernink et al. 2012; Sturges & Hanrahan, 2011). Contrary to our expectation, our findings suggest that mothers with higher education are more vulnerable to children's bullying perpetration than mothers with lower levels of education. In their qualitative interviews with mothers of children who committed a crime, Sturges and Hanrahan (2011) found that mothers with higher SES were more likely than mothers with lower SES to report feeling stigmatized by people in their communities for their children's criminality. Although past research has concluded that children from higher SES families are as likely to bully other children as children from lower SES families are (Tippett & Wolke, 2014), the lack of public discussions on how to help parents of children who bully may reflect social stigma of children's bullying perpetration in higher SES communities. Future research is warranted to better inform policy makers about experiences of parents of children who bully other children.

For the effects of maternal mental health on children's bullying involvement, our findings suggest that maternal depressive symptoms when children are third and fifth graders increase the odds of children becoming bullies or victims, although the effect sizes are very small. These findings add to prior research that has shown that maternal depression is related to various problems in children such as depression, poor behavioral adjustments, and poor academic achievements (Augustine & Crosnoe 2010; Medows et al., 2007; Turney, 2011, 2012). Similar to Turney's (2011, 2012) findings, the effects of maternal depression on children's bullying perpetration and victimization were not buffered by maternal higher levels of education.

The present analysis has limitations that future research should address. First, the measures of children's bullying involvement could be improved in several ways. The measure of bullying perpetration did not include physical bullying; and we did not distinguish types of bullying victimization. We did not have information about severity of bullying, such as whether it led to injury or suicidal thoughts. We were unable to specify where bullying occurred. We were unable to present the findings from the models that separated bully-victims from bullies and victims because the model fit was not adequate. We used mothers' reports of children's bullying involvement in part because the sample size of children who reported bullying others was too small. Second, we did not have information about mental health treatment history of mothers and children. We were unable to examine the issue of mother-child genetic vulnerability to bullying and depression. Third, although we focused on third to sixth grades, prior research suggests that peer bullying peaks during middle-school years (Hymel & Sweater, 2015). Future research should investigate how children's

bullying involvement affects parents during middle-school years. Finally, although the SECCYD provided invaluable panel data of children with diverse family backgrounds living in different regions of the country, children in the current sample were more economically advantaged than children in the general population; and the data were collected in the early-to mid-2000s. Future research using a representative sample of U.S. children of a more recent cohort is warranted.

Research and policy recommendations focus on parents' responsibilities for preventing and managing children's bullying issues. Findings of the current analysis suggest that policy makers should shed light on the mental health of parents as a part of anti-bullying initiatives. Whether parental mental health is negatively affected by bullying involvement of their children or by preceding other factors, parents need support in order to play an active role in preventing their children's bullying involvement or helping their children deal with bullying issues they experience.

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Research Highlights

- We use cross-lagged structural equation models to assess bidirectional associations.
- Third graders' bullying perpetration increases depression for college educated mothers.
- Third graders' victimization increases depression for non-college-educated mothers.
- Maternal depression increases the odds of children bullying or being bullied.
- More research on how children's bullying involvement affects parents is needed.

Figure 1.

Cross-Lagged Model of the Association Between Children's Bullying Involvement and Mothers' Depressive Symptoms

Note: The model controls for indicators of mothers' weekly work hours (G3 or G5), family income (G3 or G5), marital status (G3 or G5), the number of children in the household (G3 or G5), mothers' race/ethnicity, age at childbirth, children's gender, and, for the total sample only, mothers' education.

Table 1.Descriptive Statistics for Variables in Analyses ($N = 963$)

	Range	Full Sample		Maternal Education			
		<i>M</i>	<i>SD</i>	No College Degree		College Degree or Higher	
				<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mother's mentalhealth							
Depression Third Grade (G3)	0–60	9.00	(8.85)	10.38	(9.54)	6.98***	(7.30)
Depression Fifth Grade (G5)	0–60	8.61	(8.48)	9.72	(9.19)	6.98***	(6.99)
Depression Sixth Grade (G6)	0–60	8.89	(8.86)	9.96	(9.15)	7.27***	(8.14)
Child's bullying involvement							
Perpetration G3	0 – 2	0.29	(0.31)	0.32	(0.32)	0.26*	(0.29)
Perpetration G5	0 – 2	0.28	(0.30)	0.30	(0.32)	0.24**	(0.28)
Perpetration G6	0 – 2	0.30	(0.33)	0.34	(0.35)	0.24***	(0.29)
Victimization G3	0 – 2	0.22	(0.34)	0.26	(0.36)	0.17***	(0.29)
Victimization G5	0 – 2	0.22	(0.35)	0.27	(0.39)	0.15***	(0.28)
Victimization G6	0 – 2	0.24	(0.37)	0.28	(0.39)	0.18***	(0.32)
Controls							
Mother's age at childbirth	18–46	28.65	(5.53)	26.69	(5.53)	31.61***	(4.00)
Mother's race/ethnicity							
White	0 – 1	0.82		0.75		0.92***	
Black	0 – 1	0.11		0.17		0.02***	
Hispanic or other race	0 – 1	0.07		0.08		0.06	
Mother's education at childbirth							
College degree or higher	0 – 1	0.40					
Mother's marital status							
Married or cohabiting G3	0 – 1	0.82		0.76		0.91***	
Single G3	0 – 1	0.18		0.25		0.09***	
Married or cohabiting G5	0 – 1	0.82		0.78		0.89***	
Single G5	0 – 1	0.18		0.23		0.11***	
Family income G3	2.5 – 500	77.75	(67.96)	52.07	(36.24)	115.25***	(84.18)
Family income G5	2.5 – 500	86.11	(76.90)	59.03	(45.14)	126.88***	(94.85)
Mother's weekly work hours G3	0–81	26.40	(19.02)	27.19	(19.13)	25.19	(18.81)
Mother's weekly work hours G5	0–81	27.69	(18.94)	28.71	(19.18)	26.17	(18.51)
Number of children G3	1 – 7	2.41	(0.96)	2.45	(1.02)	2.36	(0.85)
Number of children G5	1 – 7	2.48	(1.00)	2.53	(1.06)	2.41	(0.90)
Girls	0 – 1	0.50		0.49		0.52	
N		963		579		384	

Notes. Differences by maternal education are significant at

*
 $p < .05$

**
 $p < .01$

 $p < .001$ (t-test).

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Table 2. Cross-Lagged Associations between Children's Bullying Involvement and Maternal Depressive Symptoms in 3rd, 5th, and 6th Grades

	Full Sample			No College Degree			College Degree		
	b	SE	Beta	b	SE	Beta	b	SE	Beta
<i>Path a</i>									
Perpetration G3 => Maternal depression G5	1.716	.791	.062*	.516	1.113	.018	3.534	1.038	.147*** ^b
Perpetration G5 => Maternal depression G6	1.476	.845	.051 ⁺	1.551	1.100	.054	1.365	1.293	.047
<i>Path b</i>									
Victimization G3 => Maternal depression G5	1.883	.743	.075*	3.472	.993	.137***	-1.134	1.081	-.046 ^c
Victimization G5 => Maternal depression G6	.788	.746	.031	.101	.925	.004	2.336	1.290	.080 ^{ab}
<i>Path c</i>									
Maternal depression G3 => Perpetration G5	.002	.001	.062*	.002	.001	.057	.002	.002	.055
Maternal depression G5 => Perpetration G6	.003	.001	.080**	.004	.001	.109***	.001	.002	.027
<i>Path d</i>									
Maternal depression G3 => Victimization G5	.004	.001	.106***	.005	.001	.132***	.001	.002	.022
Maternal depression G5 => Victimization G6	.003	.001	.069**	.004	.001	.087*	.003	.002	.058
<i>Concurrent associations</i>									
Perpetration <=> Maternal depression G3	.500	.091	.184***	.632	.130	.211***	.194	.110	.091 ⁺
Perpetration <=> Maternal depression G5	.038	.053	.015	.057	.078	.020	-.003	.062	-.001
Perpetration <=> Maternal depression G6	.070	.055	.024	.132	.079	.041 ⁺	-.006	.070	-.003
Victimization <=> Maternal depression G3	.769	.101	.259***	1.034	.152	.302***	.190	.110	.091 ⁺
Victimization <=> Maternal depression G5	.073	.062	.025	.031	.094	.009	.095	.068	.049
Victimization <=> Maternal depression G6	.010	.063	.003	-.088	.090	-.024	.134	.081	.051 ⁺
χ^2 (df)	167.67	(33)	***	139.76	(33)	***	67.70	(33)	***
CFI	.984			.977			.983		
RMSEA	.065			.075			.052		
N	963			579			384		

Notes. Models include other paths shown in Figure 1 and are controlled for mother's age at childbirth, race/ethnicity, marital status (G3, G5), weekly work hours (G3, G5), family income (G3, G5), the number of children in the household (G3, G5), child's gender, and, for the full sample only, mother's college degree.

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$p < .10;$
 $p < .05;$
 $p < .01;$
 $p < .001.$

Differences in the coefficients between mothers without college degrees and mothers with college degrees are significant at

$p < .05;$
 $p < .01;$
 $p < .001.$