Peer Aggression in Middle Childhood and Child and Maternal Well-Being in

Adolescence: The Life Course Perspective

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ABSTRACT

Using longitudinal data from the NICHD Study of Early Child Care and Youth Development (*N* = 901), we examine how three types of peer aggression involvement—victims only, bully-victims, or bullies only—in third, fifth, and sixth grades are related to children's and their mothers' well-being at age 15. Both the number of waves children reported being victims and the number of waves children reported being bully-victims are related to greater externalizing and internalizing problems at age 15. The number of waves children reported being victims is also related to lower math scores and more mother-child relationship conflict. Just one wave of involvement as a bully is related to more externalizing problems. These associations are stronger when aggression involvement occurs at older ages, but for math scores, third-grade occurrence matters more. Finally, children's victimization in sixth grade, not in earlier grades, is related to more maternal depression. These results support the life course perspective, suggesting the importance of duration and timing of experiences in shaping children's and maternal well-being.

BACKGROUND AND SIGNIFICANCE

Quality of relationships with friends shapes children's daily experiences and could have lasting influences on their academic, behavioral, and emotional well-being (Crosnoe, 2000; Crosnoe & McNeely, 2008). Of the many aspects of peer relationships, peer aggression or bullying has increasingly received much attention as a public health issue (Gladden et al., 2014; Hertz, Donato, & Wright, 2013; National Institute of Child Health and Human Development, 2016). Numerous studies have found that victimization of peer aggression, defined as the receipt of any act of unwanted aggression from similar-age peers (Card & Hodges, 2008), is related to more aggressive behaviors, withdrawn behaviors, internalizing problems, or anxiety/somatic symptoms (Gini & Pozzoli, 2013; Hawker & Boulton, 2000; Hodges & Perry, 1999; Ladd & Kochenderfer-Ladd, 2002; Nixon et al., 2011) as well as poorer academic performance (Juvonen et al., 2000; Juvonen et al., 2011; Kochenderfer & Ladd, 1996; Schwarz et al., 2005). Bullying, or perpetration of unwanted aggression toward peers, is also related to poorer behavioral adjustment or mental health, often measured by externalizing and internalizing symptoms (Gini & Pozzle, 2009; Scholte et al., 2007). Much less has been examined as to how bullying is related to academic performance. These findings are consistent with the idea that negative experiences in social relationships can be chronic stressors that shape externalizing symptoms and psychological distress (Umberson & Montez, 2010).

Despite a large volume of studies, there are some gaps in the literature that obscure our understanding of consequences of children's peer aggression experiences for their developmental outcomes and the well-being of their families. In this paper, we address the following three points. First, although some victims of peer aggression could be also bullies, either toward children who bully them (i.e., mutual aggression) or toward other children, a relatively few

studies separated such children—bully-victims, or aggressive victims—from children who are bullies or victims only. Studies that examined bully-victims suggest that bully-victims could be more likely than victims or bullies to show mental health problems and less academic competence (Burk et al., 2011; Hanich & Guerra, 2004; Veenstra et al., 2005). Thus, it is important to examine the three groups, victims, bully-victims, and bullies, separately to better understand the role of peer aggression in shaping children's behavioral and emotional adjustments as well as academic ability.

Second, knowledge in this area has rapidly advanced in the past few decades largely due to the use of longitudinal data (e.g., Burk et al, 2011). Such data have allowed researchers to examine longitudinal patterns of peer aggression involvement, such as degree of stability or change in peer aggression involvement over time (Burk et al., 2011; Kochenderfer & Wardrop, 2001; Pepler et al., 2008; Schäfer et al., 2005; Scholte et al., 2007). Yet, little research has examined how longitudinal patterns of peer aggression are related to children's behavioral adjustment and academic ability with a few exceptions (e.g., Boivin et al., 2010). Drawing from a life course perspective (Elder, 1998), we examine whether *duration* (or frequency) of peer aggression involvement matters in influencing the degree to which peer aggression is related to children's developmental outcomes a few years later in adolescence. Does just one year of peer aggression involvement have influences on children's developmental outcomes? Or does the number of waves children are victims, bully-victims, or bullies matter? We also examine whether *timing* of peer aggression involvement—e.g., third grade versus six grade—makes differences in the association. According to the life course perspective, the way in which an event influences a person's later outcomes depends on the timing of when the event occurs in the person's life (Elder, 1998). If earlier experiences in children's developmental stage would cause

more lasting effects, peer aggression occurrence in third grade may be more likely than peer aggression occurrence in sixth grade to be related to children's behavioral and emotional adjustments as well as academic ability in adolescence. Alternatively, if noninvolvement in a more recent year could override the negative influence of earlier involvement, what Kochenderfer-Ladd and Wardrop (2001) called the cessation hypothesis, peer aggression occurrence in sixth grade would be more likely than peer aggression occurrence in third grade to be related to children's outcomes in adolescence.

Third, very little research has investigated how children's peer aggression experiences may influence their family life. Most past studies in this area, which often use attachment theory, conceptualized that children's relationships with their mothers and their mothers' parenting affect the risk of children's involvement in peer aggression (e.g., Contreras et al., 2000). Yet, evidence from other areas of research, such as parental well-being and work-family balance (e.g., Milkie et al., 2010; Nomaguchi & Milkie, 2003), has suggested that children can shape parents' lives and psychological well-being. In this paper, we expect that children may carry negative mood and stress due to peer aggression involvement into their family life, which may influence their interactions with their mothers. The idea that individuals' experiences in one domain of life can "spill over" into another domain of life is common. Work-family research has found that parents' work stress, particularly interpersonal conflict with managers, coworkers, or clients, often spill over into their interactions with their children or spouses at home (e.g., Gassman-Pines, 2013). In a similar fashion, frustration, worry, or stressfulness they experience at school may make children less engaging in conversations with their mothers or make them take frustration out on their mothers, which may lead to greater mother-child relationship conflict. Further, we expect that children's peer aggression involvement may influence mothers'

psychological well-being. Past research on parental strain and mental health has found that how children are doing in life, including how well children can get along with others, is related to mothers' subjective as well as psychological well-being (Greenfield, & Marks, 2006; Milkie et al., 2010). Children's involvement in peer aggression, especially victimization of peer aggression, may be a primary stressor that could lead some mothers to develop depressive symptoms.

Using a unique panel data from the NICHD Study of Early Child Care and Youth Development (SECCYD), we examine the association between children's experiences of three types of aggression—victims, bully-victims, and bullies—in middle childhood (i.e., third to sixth grades) and their associations with children's behavioral adjustment and academic performance as well as their relationships with mothers and mothers' well-being a few years later when they are in adolescence. We examine how frequency and timing of peer aggression involvement within the three waves are related to children's behavioral and emotional adjustments, vocabulary and math test scores, mother-child relationship conflict, and mothers' depressive symptoms when children are 15 years old.

METHOD

Sample

The SECCYD is a longitudinal study of 1,364 children and their families that was originally designed to examine the link between non-maternal child care and child developmental outcomes. This study began in 1991 when families of newborns were recruited from hospitals in 10 cities in 9 states in the United States (see NICHD Early Child Care Research, or NICHD ECCRN, 2005 for detailed information about the data). The SECCYD collected information about peer aggression information when children were in third, fifth, and

sixth grades. For the present analysis, we first selected cases where mothers participated in all three surveys and participated in age 15 survey (n = 963). We then limited the sample to the cases where children participated in survey at age 15, the year child developmental outcomes and mother-child relationship quality were measured (N = 901).

Families in the SECCYD are more economically advantaged than families with children of the same age in the general population. The percentage of mothers with a bachelor's degree or more was higher, whereas the percentage of single mothers (i.e., mothers without a partner living in the household) was lower. The proportion of whites and the average family income were higher than those of the general population. Thus we are cautious as to the extent to which we can generalize the findings of the present analyses. Yet, most prior studies on children's peer aggression used a small sample collected from one or two local areas. The SECCYD data covers a relatively wide range of regions and provides various information about characteristics of the children and their families.

Dependent Measures

Children's behavioral and emotional adjustment. Children's *externalizing problem*s and *internalizing problems* were measured using the Child Behavior Checklist (CBCL; Achenbach, 1991). Mothers were asked whether a list of 113 items would describe about the focal child's behaviors currently or within the last six months (0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true). The externalizing problems scale was created the sum of 33 items that indicate displaying delinquent and aggressive behaviors. We used standardized score (t-score) which ranged from 31 to 100. The internalizing problems scale was the sum of 31 items that indicate acting withdrawn, having somatic complains, and appearing anxious or depressed. We also used t-score which ranged from 30 to 100.

Children's academic ability. We examined math test score (applied problems) and picture-vocabulary test score which were measured by the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R) (Vandell et al., 2010). These were only two subjects that both the first grade and the age 15 surveys had information about. In the present analysis, we used the percentile rank measure that ranged from 1 to 99, as it was useful for describing a child's relative standing in the population.

Mother-child conflict was the average of 7 item questions ($\alpha = .78$) from the Adult-Child Relationship Scale (ACRS), which was adapted from the Student-Teacher Relationship Scale (STRS; Pianta, 2001). Mothers were asked to rate how well the following descriptions apply to their mother-child relationships: (a) My child and I always seem to be struggling with each other; (b) My child easily becomes angry at me; (c) My child remains angry or is resistant after being disciplined; (d) Dealing with my child drains my energy; (e) When my child is in a bad mood, I know we're in for a long and difficult day; (f) My child's feelings toward me can be unpredictable or can change suddenly; and (g) My child is sneaky or manipulative with me. Response categories include 1 = *definitely does not apply*, 2 = *not really*, 3 = *neutral*, 4 = *applies somewhat*, 5 = *definitely applies*. Similar measures were used in prior research (e.g., Trentacosta et al. 2011).

Maternal depressive symptoms was measured as a modified version of the Center for Epidemiological Studies Depression Scale (CES-D), the sum of 20 items ($\alpha = .92$) asking mothers about the previous week (0 = less than once a week, 1 = 1 to 2 days a week, 2 = 3 to 4 days a week, 3 = most or all week).

All dependent variables were measured at age 15. Each of the dependent variables measured in first grade[1] were used as controls.

Independent Measures

Children's experiences of peer aggression were measured as self-report (Kochenderfer-Ladd & Ladd 1996; Kochenderfer-Ladd & Wardrop, 2001). In third, fifth, and sixth grades, children were asked four questions regarding victimization of peer aggression: "Does anyone in your school (a) pick on you, (b) say mean things to you, (c) say bad things about you to other kids, or (d) hit you at school? (1 = never, 2 = hardly ever, 3 = sometimes, 4 = most of the time, 5 = always)." Children were also asked four questions regarding peer aggression perpetration: "Do you (a) pick on, (b) say mean things to, (c) say bad things about, or (d) hit other kids in your class at school? (1 = never, 2 = hardly ever, 3 = sometimes, 4 = most of the time, 5 = always)." For each year, we created a dichotomous variable of victimization and a dichotomous variable of perpetration of peer aggressions, using an indicator-based approach (e.g., Pitzer & Fingerman, 2010; Schafer & Ferraro, 2011). Specifically, we distinguished between those who received or perpetrated any form of peer aggression sometimes or more from those who rarely or never did. Then using those dichotomous variables of victims and bullies, we identified four *peer aggression involvement types* for each year, including (a) no involvement, (b) victims, (c) bully-victims, (d) bullies.

In addition, we created *frequency of peer aggression involvement* across the three waves, including: the number of years children reported being victims, the number of years children

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[1] Outcome variables measured in second grade, a year, not two years, before the measures of peer aggression experiences, would be more ideal. The SECCYD did not collect the child outcomes in the second grade that we examine in this paper.

reported being bully-victims, and the number of years children reported being bullies (ranging from 0 to 3).

Further, to examine whether just one involvement in any peer aggression is related to child and maternal well-being or frequency of involvement matters, we created an 11-category variable indicating *type and frequency of peer aggression involvement*. The 11 mutually exclusive categories include: (a) no involvement in any part of peer aggression in all three waves; (b) victims in one wave and no involvement in other two waves; (c) victims in two waves and no involvement in one wave; (d) victims in all three waves ; (e) bully-victims in one wave and no involvement in other two waves; (f) bully-victims in two waves and no involvement in one wave; (g) bully-victims in all three waves; (h) bullies in one wave and no involvement in other two waves; (i) bullies in two waves and no involvement in one wave; (j) bullies in all three waves; and (k) two or more waves of peer aggression involvement across different types (e.g., no involvement in one wave, victims in one wave, and bully-victims in one wave). Because the n's were too small to make meaningful comparisons, the 4 categories including (f), (g), (i), and (j), which include bullies or bully-victims in two or more waves, were combined into one group in multivariate analyses. Thus, in regression analyses, we use 8 dummy variables where (a) no involvement in any part of peer aggression in all three waves was used as the reference.

Control Measures

Mothers' *weekly work hours* was measured in the first grade. *Family income* was a composed variable by NICHD ECCRN. Mother's *partnership status* in first grade was measured as three dummy variables including married, cohabiting, and single. *The number of children in the household* was an ordered variable measured in first grade. Mother's *age at birth* was measured in years. Mother's *education* was measured as three dummy variables including less

than college degree, college degree (reference), and advanced degree. Mother's *race/ethnicity* was measured as a dichotomous variable where non-whites were assigned 1s and whites were assigned 0s. We examined four dummy variables including white, black, Hispanic, and other race, but the sample size for Hispanic and other race became too small for multivariate analyses. Child's *gender* was a dichotomous variable where girls were coded as 1s and boys were coded as 0s. Child's *birth order* was an ordered variable. Table 1 presents means for variables in the analysis.

[Table 1 around here]

RESULTS

Peer Aggression Involvement in Third, Fifth, Sixth Grades

We first examined frequency of peer aggression involvement across the three waves from third to sixth grades. As shown in Table 1, the average number of waves children reported being victims of peer aggression was 1.03 (ranging from 0 to 3), whereas the average number of waves children reported being bully-victims or bullies was 0.27 and 0.09 respectively. Finally, the number of waves children reported not involved in any type of peer aggression was 1.60.

Second, to better understand timing of peer aggression involvement, we examined percentage distributions of children for each type of peer aggression involvement by grade. Figure 1 shows that in third grade, about 46% of children were not involved in any part of peer aggression, whereas 43.6% were victims, about 9.1% were bully-victims, and 1.4% were bullies. Children were far more likely to report victimization than their own aggression toward peers, perhaps, as Kochenderfer-Ladd and Wardrop (2001) noted, in part because children are more sensitive to their peers' aggression than their own aggression toward other children. By sixth grade, those who were not involved in any part of peer aggression increased to 60%, whereas

victims decreased to 27%. Bullies increased to 4.8%, although it remained a small percentage. Percentage of children reporting being both bullies and victims (bully-victims) changed little across the three grades (8.1%).

[Figure 1 around here]

Third, we examined percentage distributions of children by type and frequency of peer aggression involvement across the three waves to see longitudinal patterns of peer aggression involvement (Figure 2). A majority of children did not change types of peer aggression involvement across three waves. About 26% of children reported that they were not any part of peer aggression in all three waves. A little more than half (52.4%) of children were victims only, whereas 9.3% were bully-victims only, and 3.3% were bullies only. Only 9.1% of children changed their involvement types (e.g., victims in third grade became bully-victims in five grade). In supplemental analysis (not shown), when we just looked at children who reported any types of peer aggression within the three waves, still only 12.3% of them switched one time from another. These finding suggest that unlike the idea of social learning, victims of peer aggression do not "learn" to bully other children. When broken down by frequency, about 23% of children reported being victims in one wave and no involvement in two other waves, whereas about 19% of children reported being victims in two waves and no involvement in one wave. About 10% of children reported being victims in all three waves. For bullies and bully-victims, almost no children reported being in either of these types across all three waves. These findings suggest that, consistent with prior findings (Kochenderfer-Ladd & Wardrop, 2001; Pepler et al., 2008; Scholete et al., 2007), peer aggression experiences are common—about three-fourths of children

reported some type of involvement in at least one out of the three waves—but not chronic for a majority of children.[2]

[Figure 2 around here]

The Association Between Peer Aggression and Child and Maternal Well-being

How are children's peer aggression involvement in middle childhood related to children's outcomes in adolescence? Table 2 presents results of OLS regression models for children's behavioral and emotional outcomes, measured by externalizing problems and internalizing problems respectively. Note that for each dependent variable in the analyses, we controlled for the same variable measured in first grade in addition to other controls. Thus, in essence, models tested how peer aggression experiences in middle childhood were related to *changes* in children's outcomes, mother-child relationship quality, and maternal depression between first grade and age 15. For children's externalizing problems, the number of waves children were victims within the three waves—third, fifth, and sixth grades—was related to higher scores of externalizing problems at age 15 (Model 1). The number of waves children were bully-victims children were also related to higher scores of externalizing problems at age 15. For bullies, the number of waves children reported such behavior was related to higher scores of externalizing problems, but as Model 2 suggest, even just one wave of being a bully was significantly related to higher scores in externalizing problems. In contrast, for victims and bully-victims, just one wave of such experiences was not related to externalizing problems at age 15. In terms of timing, as shown in Model 3, peer aggression occurrence in sixth grade was more likely than peer

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[2] Supplemental analyses suggest that among those who were victims in third grade, 23% reported being victims in both fifth and sixth grades.

aggression that happened in earlier grades to be related to higher scores of externalizing problems.

For internalizing problems, the number of waves children reported victimization of peer aggression, either victims only or bully-victims, was related to higher scores of internalizing problems at age 15 (Model 1). Yet, as Model 2 suggests, just one wave of victimization was not related to higher scores of internalizing problems. Victimization in fifth and sixth grades, but not in third grade, was related to higher scores of internalizing problems at age 15 (Model 3). Bully-victims in sixth grades, but not in third or fifth grades, were also related to higher scores of internalizing problems at age 15. These findings suggest that peer aggression involvement at more recent waves or older ages have stronger influences on internalizing problems than that at earlier waves or younger ages.

[Table 2 around here]

Turning to academic outcomes (Table 3), the number of waves children were victims was related to lower math test scores at age 15. Just one wave of being a victim was not related to lower math test scores (Model 2). Yet, victimization in third grade was related to lower math scores (Model 3). Persistent victims or persistent involvement in different types was related to lower math test scores (Model 2). In contrast, peer aggression experiences were not related to vocabulary test scores.

[Table 3 around here]

Finally, results examining the association between children's peer aggression involvement and mothers' perceptions of their mother-child relationship quality and their depressive symptoms are presented in Table 4. The number of waves children were victims (Model 1) and children's victimization in all three waves (Model 2) were related to higher scores

of mother-child conflict when children were 15 years old. In terms of timing, victimization—either victims only or bully-victims—at older ages was related to higher scores of mother-child conflict when children were 15 years old. For maternal depression, none of the frequency measures of children's involvement in peer aggression were related to it (Model 1). Yet, timing of occurrence appeared to matter: being victims in sixth grade was related to more maternal depression when children were 15 years old (Model 3).

[Table 4 around here]

DISCUSSION

This paper examined patterns of peer aggression involvement across third, fifth, and sixth grade and their associations with children's and mothers' well-being when children are 15 years old. Guided by the life course perspective, and using longitudinal data that allow us to control for children's mothers' outcome variables in earlier years, we focused on how frequency and timing of peer aggression involvement might make differences in those associations.

We found that a majority of children are involved in peer aggression at least one of the three years across third, fifth, and sixth grades. Only about one-quarter of children reported no experience of peer aggression for all three years. For most children, however, involvement in peer aggression is not persistent. Only about 10% of children reported being victimized in all three years. A very small percentage of children reported being bullies or bully-victims for all three years. These findings are consistent with prior findings that only a small percentage of children show stable victimization or bullying perpetration throughout childhood and adolescence (Kochenderfer-Ladd and Wardrop, 2001; Pepler et al., 2008; Scholete et al., 2007). Another notable finding is that almost all children do not change the types of roles they play—victims, bully-victims, and bullies—in peer aggression. Only about 9 % of children overall and

12% of those who were involved in peer aggression during the three waves changed their roles from one to another (e.g., from victims to bully-victims).

With regarding to consequences of peer aggression involvement, we found that frequency of involvement matters. Children who reported being victims or bully-victims in one wave only did not show significant differences in externalizing or internalizing symptoms, or math test scores from those who never involved in any part of peer aggression in the three waves. One exception is bullying. Just one wave of being a bully is positively related to greater externalizing symptoms a few years later. Because the number of children who reported being bullies was very small, we are cautious about making a strong conclusions.

Timing of involvement also matters, but in different ways depending on children's developmental outcomes that we examined. For children's non-academic outcomes (i.e., externalizing and internalizing problems), more recent experience of peer aggression seems to matter more than earlier experiences. It is possible that the effects of victimization of peer aggression in earlier elementary school years on externalizing or internalizing symptoms may fade away by the time children reach age 15 if they were able to escape any peer aggression in later elementary school years. Kochenderfer-Ladd and Wardrop (2001) called it the cessation hypothesis. Alternatively, the findings may suggest the age effect. As we saw, close to a half of children in the sample reported victimization in third grade, whereas 27% did so in six grade. Because it is less common at older ages than at younger ages, peer aggression experiences at older ages may have stronger effects on children. In contrast, for math scores, victimization in third grade is more influential than victimization in later grades. This could be because math skills directly build on comprehension of earlier materials.

Another key contribution of this paper was that it examined the link between children's peer aggression involvement and mother-child relationship quality as well as maternal psychological well-being. We found that children's persistent victimization is related to higher scores of mother-child conflict. In terms of timing, victimization at more recent waves or older ages, but not at earlier waves or younger ages, is related to more mother-child conflict. For maternal depression, it appears that timing, not frequency, matters. Children's victimization in sixth grade, but not earlier waves, is related to more maternal depression when children are age 15.

The present analysis have some limitations. First, peer aggression involvement was measured only once per year and only for three years. It is unclear how long children were actually experiencing peer aggression. Second, as we discussed in the method section, children and their families in the SECCYD are more economically advantaged than those in the general U.S. population (NICHD ECCRN, 2005). Prior research has suggested that peer aggression may be more prevalent among lower SES families than among higher SES families, although differences are small (Tippett & Wolke, 2014). It is possible that the findings of the present analysis might be underestimating prevalence of peer aggression. Further, it is unclear to what extent the current findings could be generalized to children and their mothers from lower SES families.

All in all, the present findings are consistent with the life course perspective which emphasizes that duration and timing of experiences play an important role in shaping children's and mothers' well-being. We found that such timing may vary by type of peer aggression (victims, bully-victims, or bullies) as well as child outcomes (e.g., academic ability versus externalizing or internalizing symptoms). These findings may add to the policy debate over the

importance of timing of interventions to buffer negative consequences of peer aggression involvement for children's healthy development. Further, our findings suggest that children's peer aggression experiences have negative implications for mother-child relationship quality and maternal psychological well-being.

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Table 1. Means (Std) for Variables in the Analysis (N = 901)

Child's and mother's well-being		
Externalizing problems, age 15	49.24	(9.82)
Externalizing problems, first grade	48.74	(9.83)
Internalizing problems, age 15	47.24	(10.18)
Internalizing problems, first grade	48.29	(8.90)
Math test percentile, age 15	54.48	(26.66)
Math test percentile, first grade	68.03	(28.34)
Vocabulary test percentile, age 15	49.78	(28.07)
Vocabulary test percentile, first grade	60.91	(28.19)
Maternal depression, age 15	10.31	(9.69)
Maternal depression, first grade	8.20	(8.47)
Mother-child conflict, age 15	2.50	(0.92)
Mother-child conflict, first grade	2.17	(0.84)
Peer aggression involvement, third, fifth, and sixth grades		
# of waves victims	1.03	(0.98)
# of waves bully-victims	0.27	(0.59)
# of waves bullies	0.09	(0.33)
# of waves non-involvement	1.60	(1.08)
Controls		
Mother's marital status, first grade		
Married	0.77	
Cohabiting	0.05	
Single	0.18	
Mother's weekly paid work hours, first grade	26.65	(18.95)
Family income, first grade	67.59	(52.14)
Number of children, first grade	2.38	(0.92)
Girls	0.50	
First child	0.45	
Mother's education at birth		
< High school	0.07	
High school	0.20	
Some college	0.32	
College degree	0.24	
Advanced degree	0.17	
Mother's age at birth	28.78	(5.51)
Mother's race/ethnicity		
White	0.83	
Black	0.11	
Hispanic or other race	0.07	

Table 2. OLS Regression Models for the Association Between Peer Aggression and Child Well-being at Age 15 (N = 901)

	Externalizing Problems						Internalizing Problems					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Frequency												
# of waves victims	1.500	.348***					1.669	.373***				
# of waves bully-victims	3.363	.585***					2.522	.625***				
# of waves bullies	3.583	1.044***					.484	1.132				
Frequency & type												
One victim only			.401	.933					.938	1.006		
One bully-victim only			2.663	1.935					2.099	1.897		
One bully only			6.379	2.292**					1.555	2.447		
Two victims			4.163	1.034***					3.607	1.036***		
Two+ bullies or bully-victims			7.084	1.491***					5.727	1.563***		
Two+ varying			3.760	1.411**					2.881	1.628		
Three victims			3.505	1.213**					4.828	1.317***		
Timing												
Victims G3					.683	.705					.171	.775
Bully-victims G3					-.420	1.184					-.466	1.258
Bullies G3					-3.277	3.173					-2.590	3.649
Victims G5					1.342	.806					1.533	.893
Bully-victims G5					3.164	1.236*					2.860	1.314*
Bullies G5					4.314	1.943*					-.690	2.203
Victims G6					2.299	.788**					3.279	.850***
Bully-victims G6					7.166	1.381***					4.957	1.428***
Bullies G6					5.513	1.564***					2.744	1.760
Mother's marital status[a][b]												
Cohabiting	-.165	1.591	-.491	1.617	-.246	1.558	-.769	1.671	-.862	1.680	-.984	1.649
Single	2.011	.955*	2.058	.962*	2.064	.952*	1.611	1.019	1.586	1.022	1.559	1.019
Weekly paid work hours[b]	-.007	.018	-.007	.018	-.009	.018	-.004	.019	-.004	.019	-.005	.019

Family income[b]	-.018	.008*	-.018	.008*	-.020	.008*	-.011	.008	-.011	.008	-.013	.008
Number of children[b]	-.580	.406	-.558	.405	-.498	.407	-.106	.421	-.163	.420	-.020	.424
Girls	1.079	.651*	1.042	.652	.942	.651	1.170	.673	1.249	.673	1.094	.674
First child	.048	.768	.137	.771	-.039	.767	-.254	.795	-.222	.798	-.246	.801
Mother's education[a]												
< High school	.765	1.548	1.010	1.559	.713	1.535	.115	1.631	.164	1.642	.076	1.629
High school	1.868	1.082	1.912	1.089	1.550	1.077	.487	1.158	.401	1.162	.345	1.159
Some college	1.243	.902	1.251	.913	.963	.905	.417	.942	.322	.952	.317	.947
Advanced degree	1.276	1.033	1.310	1.043	1.185	1.018	1.099	1.071	1.092	1.082	1.012	1.066
Mother's age at birth	.149	.076*	.157	.076*	.146	.075	.017	.078	.012	.078	.022	.078
Mother's race/ethnicity[a]												
Black	.172	1.153	.797	1.166	.356	1.142	-1.304	1.210	-1.136	1.226	-1.216	1.211
Hispanic or other race	2.282	1.282	2.138	1.288	2.237	1.274	.737	1.400	.713	1.404	.744	1.409
DV at G1	.085	.036*	.101	.035**	.088	.035*	.164	.040***	.169	.040***	.164	.039***
Intercept	38.646	3.570***	37.969	3.622***	39.036	3.546***	36.381	3.756***	36.762	3.803***	36.552	3.750***
R^2	.132	***	.123	***	.154	***	.089	***	.085	***	.104	***

*p < .05; **p < .01; ***p < .001

a Omitted reference groups are: Never involved, married, college degree, white.

b Measured in first grade.

Table 3. OLS Regression Models for the Association Between Peer Aggression and Child Academic Ability at Age 15 (N = 901)

	Math Test Score						Vocabulary Test Score					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Frequency												
# of waves victims	-1.585	.746*					.797	.752				
# of waves bully-victims	-.587	1.330					-.061	1.287				
# of waves bullies	-3.849	2.225					-2.363	2.403				
Frequency & type												
One victim only			-1.131	2.069					2.709	2.302		
One bully-victim only			-.321	3.954					-.874	3.881		
One bully only			-9.157	5.227					1.422	4.936		
Two victims			-2.620	2.033					.727	2.240		
Two+ bullies or bully-victims			-.778	3.028					1.823	3.283		
Two+ varying			-6.545	2.946*					-2.508	2.986		
Three victims			-5.893	2.777*					4.098	2.556		
Timing												
Victims G3					-3.547	1.553*					-.153	1.682
Bully-victims G3					-3.876	2.935					-1.940	2.756
Bullies G3					-4.623	7.827					-14.230	8.259
Victims G5					-.637	1.802					.650	1.769
Bully-victims G5					-.037	2.851					2.073	2.607
Bullies G5					-7.990	4.350					3.854	4.698
Victims G6					-.677	1.675					1.954	1.684
Bully-victims G6					1.997	2.824					-.664	2.728
Bullies G6					-.078	3.798					-3.478	3.763
Mother's marital status[ab]												
Cohabiting	-6.075	3.269	-5.877	3.275	-6.422	3.277	-5.532	3.477	-5.614	3.525	-5.336	3.455

	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Single	-2.893	2.138	-2.917	2.091	-2.989	2.157	-.796	2.051	-.953	2.069	-.613	2.043
Weekly paid work hours[b]	-.031	.039	-.035	.039	-.031	.039	-.003	.039	-.004	.039	-.002	.039
Family income[b]	.022	.018	.021	.018	.021	.018	-.007	.018	-.009	.018	-.007	.018
Number of children[b]	-1.100	.878	-1.215	.885	-1.059	.884	-1.612	.934	-1.724	.941	-1.474	.941
Girls	-3.309	1.365*	-3.411	1.371*	-3.288	1.369*	-3.959	1.387**	-3.722	1.381**	-4.141	1.392**
First child	1.438	1.563	1.242	1.573	1.373	1.578	2.932	1.569	2.859	1.570	3.115	1.588
Mother's education[a]												
< High school	-10.490	3.532**	-10.453	3.556**	-10.510	3.560**	-14.131	3.303***	-14.249	3.333***	-14.106	3.312***
High school	-10.524	2.420***	-10.708	2.397***	-10.687	2.443***	-8.492	2.354***	-8.769	2.370***	-8.591	2.354***
Some college	-9.433	2.074***	-9.477	2.062***	-9.581	2.113***	-5.415	1.934**	-5.562	1.956**	-5.353	1.982**
Advanced degree	-.860	2.227	-.772	2.225	-.911	2.252	-.002	2.153	-.101	2.150	-.061	2.150
Mother's age at birth	.058	.170	.040	.170	.062	.170	.268	.163	.257	.163	.266	.162
Mother's race/ethnicity[a]												
Black	-5.407	2.638*	-5.542	2.635*	-5.408	2.624*	-10.394	2.461***	-10.067	2.457***	-10.445	2.508***
Hispanic or other race	.736	2.863	1.189	2.838	.834	2.868	-3.013	2.996	-2.703	2.988	-3.299	3.001
DV at G1	.468	.027***	.466	.027***	.466	.027***	.530	.027***	.531	.027***	.531	.027***
Intercept	33.297	7.314***	34.577	7.343***	33.716	7.296***	20.494	6.584**	20.727	6.738**	20.276	6.580**
R^2	.459	***	.463	***	.463	***	.518	***	.521	***	.523	***

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

a Omitted reference groups are: Never involved, married, college degree, white.

b Measured in first grade.

Table 4. OLS Regression Models for the Association Between Peer Aggression and Maternal Well-being at Age 15 (N = 901)

	Mother-Child Conflict						Maternal Depression					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Frequency												
# of waves victimized	.063	.030*					.514	.313				
# of waves bully-victims	.059	.051					.312	.506				
# of waves bullies	.044	.087					.734	.881				
Frequency & type												
One victim only			.024	.080					.501	.860		
One bully-victim only			.203	.164					2.454	1.659		
One bully only			.197	.201					1.626	2.086		
Two victims			.056	.083					.976	.899		
Two+ bullies or bully-victims			.092	.129					.225	1.331		
Two+ varying			.053	.108					.861	1.264		
Three victims			.295	.117*					2.135	1.160		
Timing												
Victims G3					-.052	.062					-.369	.668
Bully-victims G3					-.073	.114					-.460	1.119
Bullies G3					.097	.260					-2.373	2.864
Victims G5					.107	.067					.432	.687
Bully-victims G5					-.036	.109					.351	1.147
Bullies G5					.153	.165					1.342	1.691
Victims G6					.141	.067*					1.556	.701*
Bully-victims G6					.284	.113*					.979	1.156
Bullies G6					-.028	.139					1.325	1.392
Mother's marital status[a][b]												
Cohabiting	-.021	.140	-.023	.139	-.052	.139	1.275	1.505	1.266	1.511	1.265	1.524
Single	-.089	.084	-.088	.084	-.080	.084	-.393	.873	-.364	.879	-.404	.877
Weekly paid work hours[b]	-.001	.002	-.001	.002	-.001	.002	-.001	.016	.000	.016	-.001	.016

Family income[b]	-.001	.001	-.001	.001	-.001	.001	-.016	.007*	-.016	.007*	-.016	.007*
Number of children[b]	.001	.034	-.001	.034	.002	.034	-.404	.356	-.404	.356	-.346	.358
Girls	.168	.055**	.177	.055**	.161	.055**	-.176	.576	-.143	.576	-.235	.579
First child	.102	.063	.109	.063	.091	.062	-.613	.666	-.558	.667	-.561	.666
Mother's education[a]												
< High school	.360	.132**	.362	.132**	.341	.133*	3.068	1.406*	3.141	1.407*	3.028	1.406*
High school	.228	.092*	.234	.091*	.226	.091*	-.006	.973	.132	.974	-.007	.976
Some college	.304	.077***	.308	.077***	.298	.077***	.378	.827	.512	.830	.421	.832
Advanced degree	.104	.087	.110	.087	.089	.088	-.478	.924	-.425	.928	-.509	.925
Mother's age at birth	.004	.006	.004	.006	.003	.006	-.020	.067	-.019	.067	-.018	.068
Mother's race/ethnicity[a]												
Black	-.189	.104	-.170	.103	-.154	.101	-.208	1.043	-.096	1.044	-.159	1.048
Hispanic or other race	.123	.109	.113	.110	.113	.109	.750	1.150	.633	1.151	.675	1.155
DV at G1	.504	.034***	.508	.034***	.509	.035***	.499	.036***	.495	.036***	.498	.036***
Intercept	.992	.268***	.991	.269***	1.036	.268***	8.232	2.711**	7.986	2.726**	8.218	2.722**
R^2	.271	***	.275	***	.280	***	.254	***	.257	***	.258	***

*p < .05; **p < .01; ***p < .001

a Omitted reference groups are: Never involved, married, college degree, white.

b Measured in first grade.

Table 5. Summary of Findings

	Externalizing Problems			Internalizing Problems			Math			Vocabulary			Child-Mother Conflict			Maternal Depression		
	#	# & Type	Timing	#	# & Type	Timing	#	# & Type	Timing	#	# & Type	Timing	#	# & Type	Timing	#	# & Type	Timing
# of waves victims	+			+			-						+					
# of waves bully-victims	+			+														
# of waves bullies	+																	
One victim only																		
One bully-victim only																		
One bully only		+																
Two victims		+			+													
Two+ bullies or bully-victims		+			+													
Two+ varying		+						-										
Three victims		+			+			-						+				
Victims G3									-									
Bully-victims G3																		
Bullies G3																		
Victims G5																		
Bully-victims G5			+			+												
Bullies G5			+															
Victims G6			+			+									+			+
Bully-victims G6			+			+									+			
Bullies G6			+															

Figure 1. % Peer Aggression Involvement: Third, Fifth, and Sixth Grades (N = 901)

■ Third Grade   ■ Fifth Grade   ■ Sixth Grade

	Third Grade	Fifth Grade	Sixth Grade
No involvement	45.9	54.7	59.8
Victims	43.6	32.1	27.3
Bully-Victims	9.1	10.1	8.1
Bullies	1.4	3.1	4.8

Figure 2. % Peer Aggression Involvement Across Three, Fifth, and Sixth Grades (N = 901)