

Aggressor/Victim Subtypes and Teacher Factors in First Grade as Risk Factors for Later Mental Health Symptoms and School Functioning

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In a sample of 244 first graders, we identified four subtypes of children based on multi-informant measures of victimization by peers and aggression toward peers: aggressive victims (AV), non-victimized aggressors, non-aggressive victims, and non-aggressive, non-victimized (i.e., normative) children. We examined the differences between the aggressor/victim groups concurrently and two years later in third grade in terms of both mental health symptoms (severity and directionality) and school functioning (academic competence and school engagement). AV showed the worst results for mental health, academic competence, and school engagement concurrently and two years later. The role of first-grade teacher experience and education in predicting third-grade outcomes was also the subject of examination. Significant interactional effects were found between both AV and teacher experience and education. Most notably, the education level of first-grade teachers interacted with AV status to predict school engagement, such that the least engaged students at third grade were AV whose first-grade teachers had no schooling beyond a bachelor's degree.

Key Words: Aggressive Victims, Teacher Experience, Teacher Education, Mental Health Symptoms, School Adjustment

Introduction

Children's successful navigation of the transition to school can significantly impact upon their long-term

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emotional, behavioral, and academic adjustment. As such, the early school years have been characterized as a "critical period" for children's development (Entwisle & Alexander, 1989) during which children must negotiate increasing academic demands alongside new social relationships in the school setting. Evidence has shown that early peer relationships can serve as either relational stressors or supports that contribute to later school adjustment (Kochenderfer & Ladd, 1996; Wentzel, 1999) and that childhood aggression interacts with social relations to influence psycho-educational adjustment trajectories (Ladd & Burgess, 2001; Wentzel, Barry, & Caldwell, 2004). Recent studies of child aggression and peer victimization have begun to explore the developmental implications for children who experience problems in both areas (Schwartz, Proctor & Chien, 2001), but this work has been largely cross-sectional in nature (for exception Hanish & Guerra, 2004). Further, the

possible influences of the teacher in this area have not been considered, even though teacher experience and education level have been shown to exert important influences on young children's development, and interventions targeted at these features have demonstrated an ability to improve adjustment outcomes for young children (Aber, Brown, & Jones, 2003; Darling-Hammond, 2000; Rutter & Maughan, 2002). The present study examines the role of four aggressor/victim subtypes and several teacher factors in predicting children's emotional, behavioral, and academic well-being during the early school years.

Peer Aggressor/Victim Subtypes: Distinct or Comorbid

There exist increased levels of interest in peer subtypes, such as the combination of proactive and reactive aggression (Dodge & Coie, 1987; Crick & Dodge, 1996; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Little, Brauner, Jones, Nock, & Hawley, 2003), aggression and victimization (Schwartz et al., 2001; Hanish, & Guerra, 2004), aggression and withdrawal (Farmer, Bierman, et al., 2002), aggression and rejection (Haselager, Cillessen, Van Lieshout, Riksen-Walraven, & Hartup, 2002), aggression and asocial behavior (Kochenderfer-Ladd, 2003). Although such behaviors of peer difficulties are without exception highly correlated, a comorbid subgroup (i.e., aggressive-withdrawn group) is uniquely linked to different outcomes (e.g., antisocial vs. asocial) and underlying mechanisms (e.g., social cognition). Furthermore, children who have the comorbid problems of peer relations (e.g. aggressive-victimized, aggressive-withdrawn, or aggressive-rejected) were at greater risk of concurrent and longitudinal adjustment and behavior problems than children who have only one side of peer difficulties (i.e. non-aggressive withdrawn children) or those who don't have either aspect (i.e., non-aggressive, non-withdrawn children). Regardless of which behavioral qualities are considered for the subtypes, consistent results have shown that a subgroup that is characterized as both qualities is at greater risk of concurrent and later maladjustment and dysfunction.

Of particular interest is the issue of aggressive victims, an under studied subgroup of children initially identified by Olweus (1978) who are thought to be at greater risk than either nonvictimized aggressors or nonaggressive victims for mental health problems and impaired functioning (Haynie et al., 2001; Hess & Atkins, 1998; Kumpulainen et al., 1998; Perry, Perry, & Kennedy, 1992; Schwartz, 2000). Several recent studies have validated these groups and identified their

associated features in children (reviewed in Schwartz et al., 2001; Toblin, Schwartz, Gorman & Abou-ezzeddine, 2005). A prospective longitudinal study (Park, Essex, & Klein, 2003) validated peer subtypes of aggression and victimization as a distinct subgroup, exploring the joint influences of early child characteristics and family factors on children's later peer subtypes at the end of 1st Grade. The findings identified child and family factors from the periods of infancy, preschool, and kindergarten that put children at risk of being Aggressive Victims by their 1st Grade.

Aggression, Victimization and Adjustment

The interplay between child behavior, peer relations, and adjustment outcomes over time has been the object of much recent theory and research (Deater-Deckard, 2001; Ladd, 1999; Rudolph & Asher, 2000). Aggression in children has been related to impaired peer relations, internalizing and externalizing symptoms, and school adjustment difficulties (e.g. Kupersmidt, Burchinal, & Patterson, 1995; Farmer et al., 2002). Victimized children are at a higher risk of experiencing loneliness and school avoidance (Juvonen, Nishina, & Graham, 2000), and young children who suffer chronic peer victimization are more likely to demonstrate continued loneliness and decreased social satisfaction (Kochenderfer-Ladd & Wardrop, 2001). Longitudinal work also has demonstrated that early problems in children's peer relations predict later internalizing and externalizing problems and poorer school adjustment (Buhs & Ladd, 2001) and may presage adolescent adjustment difficulties (Woodward & Fergusson, 2000).

Building on the early work of Olweus (1978), recent research has recognized that aggressors and peer-victimized children are orthogonal, and that it is useful to distinguish between four subtypes of children based on their aggression toward peers and victimization by peers. Although the terms and operational definitions used by researchers have varied somewhat across studies, four basic subtypes have been identified: aggressive victims (AV), non-victimized aggressors (AGG), non-aggressive victims (VIC), and non-aggressive, non-victimized children (i.e., normative; NRM). Evidence suggests that AV, AGG, and VIC are more likely to exhibit problems with mental health and school functioning than NRM, and further that relative to AGG and VIC, AV typically show the greatest difficulties. In a large sample of Maryland middle school students, Haynie and colleagues (2001) found significant subtype differences in problem behaviors, self-control, depressive symptoms, and school functioning; for

each of these measures, AV exhibited the worst functioning and NRM the best, with AGG and VIC in between. In a sample of third- through fifth-graders, Hess and Atkins (1998) examined teacher, child, and peer ratings and found that teachers rated AV and AGG lower in attention and higher in irritability than VIC and NRM; children in the AV and AGG groups reported more behavior problems; and peers rated AV most likely to be disruptive and least socially preferred. Schwartz (2000) found in a sample of fourth- to sixth-grade children that, while AGG showed high levels of ADHD symptoms and peer rejection, AV were the highest of the groups on these measures; AGG and AV also experienced more academic difficulties than other children, and AV showed greater internalizing symptoms than either AGG or NRM. Overall, then, these studies suggest that AGG and VIC tend to show worse mental health and poorer social and school functioning than NRM, with AV appearing to be at the greatest risk for problems in these areas.

The Potential Role of Teachers as an Influential Factor

Although not yet considered in aggressor/victim studies, the influence of structural characteristics of teachers on children's functioning has been of interest to researchers and school-reform advocates for decades. Since the publication of *Equality of Educational Opportunity* (Coleman et al., 1966), many researchers have examined the effects of "school inputs (i.e. teacher characteristics)" on student outcomes. Darling-Hammond's (2000) examination of teacher-quality characteristics found that the percentage of teachers in a school with full certification, an undergraduate major in their field, and/or a master's degree explained more than two-thirds of the total variance in students' academic achievement.

More specific studies of state and district spending policies suggest that high standards for teachers can result in improved student outcomes. Connecticut, for example, increased teacher salaries and standards following the passage of the 1986 Educational Enhancement Act, such that teachers' now have unusually high levels of education (82.4% had master's degrees as opposed to 47.3% of teachers nationwide) and average years of experience (16); between 1992 and 1998, Connecticut showed the greatest improvement in reading achievement on the National Assessment of Educational Progress (NAEP) and in 1998 had the highest NAEP reading scores in the country (Baron, 1999). North Carolina, New York Community School District #2, and California's New Haven Unified School District have mandated similar

educational reforms that enhanced student learning by improving teacher quality standards and professional development (Darling-Hammond, 2000; Elmore & Burney, 1997; Snyder, 1999).

Although they tend to have significant but modest effects on student achievement and adjustment (Greenwald, Hedges, & Laine, 1996; Rutter & Maughan, 2002; van den Oord & Van Rossem, 2002), the role that teacher education and experience might play in predicting outcomes for different aggressor/victim subtypes has yet to be examined. In particular, given that it has been not obvious who benefits from a "better" teacher or takes a greater risk of a "worse" teacher, children's peer status (i.e. subtypes of peer aggression and victimization) might be a clue to this question. Yet, these are teacher factors that might be targeted for intervention to improve the well-being of aggressor/victim subtypes most at risk.

Present Study

In the present study, we take a developmental perspective that considers child and context factors to look at later adjustment outcomes, examining the role of aggressor/victim subtypes and teacher factors in predicting symptoms and functioning concurrently and two years later. We use longitudinal data from first to third grade, employ a multi-informant approach, and include measures of overt and relational aggression to address two major research questions. First, are there group differences in outcomes among aggressor/victim subtypes in Grade 1 and 3? Secondly, what roles are played by teacher factors in predicting third grade outcomes for the aggressor/victim subtypes? Based on the prior research reviewed above, we hypothesized that 1) AV, AGG, and VIC would exhibit more difficulties than NRM, and that AV would show the greatest problems; and 2) characteristics of the teacher would differentially influence the aggressor/victim subgroups, with AV at greater risk for problems due less teacher experience and lower levels of teacher education. In testing both hypotheses, we consider the possible effects of gender.

Method

Participants

The children in this study represent a subset of those

participating in an ongoing longitudinal study of child development, the Wisconsin Study of Family and Work (see Essex, Klein, Cho, & Kalin, 2002). The original sample consisted of 570 women and their partners who were recruited during the second trimester of pregnancy from obstetric/gynecology clinics and a low income clinic in two Midwestern cities and their surrounding communities. The present analyses focus on the two assessments conducted when the target child was in first grade (Time 9) and third grade (Time 10). In first grade, a subset of 275 families was selected for more intensive assessment, including the child's self-report of mental health symptoms and functioning. Of these 275 children, the 244 included in the present analyses represent those with complete data on all measures of interest. At the time of recruitment, 25% of the 244 mothers had a high school or technical degree or less, 20% had some college, 34% had a 4-year college degree, and 21% had more than a 4-year degree; 95% were married; and 42% were first-time mothers. Average family income was \$49,000, ranging from less than \$10,000 to more than \$200,000. Additionally, 91% of the families were Caucasian. The average age of the children at the first-grade assessment was 7.22 years old ($SD=.29$); there were 123 girls and 121 boys. The 244 families in the present analyses are not significantly different from the remainder of the original 570 families in terms of the mother's age or education, family income, marital status, ethnicity, or the ratio of girls to boys. The children's teachers were also recruited to participate; 236 (96.7%) of the first-grade teachers and 219 (89.8%) of the third-grade teachers were female.

Procedures

During the late spring of the children's years in first and third grades, mothers were interviewed by telephone about their child's problem behaviors, social relationships, and school adjustment. Teachers were interviewed by phone in both grades after parental permission and the consent of school principals (and district officials where required) were obtained. Two separate home visits were conducted with first graders: during the late spring they were interviewed about their school adjustment and social relations, and during the summer immediately following first grade they were interviewed about their mental health symptoms and behavior problems. In third grade, children were administered all measures at a single home visit conducted in the late spring. In both first and third grades, children selected a prize at the

end of each visit, and mothers and teachers received payment checks for their participation. Informed consent procedures approved by the University's Human Subjects Committee were used with all participants.

Measures

Multi-Informant Measures in First and Third Grade

Mothers and teachers reported on children's behavioral interactions with peers (aggressive, victimized) in first grade, and children's mental health symptoms and school functioning in first and third grades, using interview versions of the MacArthur Health and Behavior Questionnaire (HBQ; Essex, Boyce, et al., 2002). The HBQ is a parent- and teacher-report instrument assessing children's physical and mental health, and social and academic functioning. It was developed for and validated in samples of children ranging in age from preschool to the early elementary years. Children were interviewed in first grade using the Social, Academic, and Symptomatology modules of the Berkeley Puppet Interview (BPI; Ablow et al., 1999). In the BPI, two dog hand-puppets ("Iggy" and "Ziggy") present opposing statements to children (e.g., "Kids at school don't tease me" and "Kids at school tease me") who then are asked to indicate which puppet is more like them. Children's responses are videotaped and later coded based on which statement the child identifies with and whether the response is a qualification (e.g., "Only one kid teases me"), straight endorsement (e.g., "I'm like Ziggy"), or amplification (e.g., "Kids at school always tease me"). Given children's developmental advances between grades 1 and 3, the BPI was modified for administration without the use of puppets at third grade: at that time, the BPI items were administered by an interviewer using a flip-book paper-and-pencil format, reading aloud while children followed along. For each item, after determining which one of two statements was most like them, children themselves marked whether that statement was sort of, mostly, or really like them.

The items in the HBQ and BPI were developed in tandem to provide parallel adult and child reports. Based on work recently reported by Kraemer et al. (2003), Principal Components Analysis (PCA) was used to integrate the multi-informant data for each construct of interest. The first factor, which always contained all positive loadings tapping the child's "core characteristic" (e.g., overt aggression), provided a more reliable and valid measure than scores based on a

single reporter or a combinational approach that does not control extraneous variance.

Subtypes of Aggressive and Victimized Children. First graders were defined as aggressive victims (AV), non-victimized aggressors (AGG), non-aggressive victims (VIC), and non-aggressive, non-victimized children (i.e., normative; NRM) based on HBQ–BPI multi-informant scores for Overt Aggression, Relational Aggression, and Victimization by Peers. Children were defined as AV if they were in the upper 33% of the distributions of the overt or relational aggression scales and the victimization scale; AGG if they were in the upper 33% of the distributions of the overt or relational aggression scales but not the victimization scale; VIC if they were in the upper 33% of the distribution of the victimization scale but neither the overt nor relational aggression scales; and NRM if they were not in the upper 33% of any of the three scales.

Symptom Severity and Directionality. Measures of mental health symptoms were assessed with subscales from the HBQ and BPI which were drawn primarily from the well-established Ontario Child Health Study Scales (OCHS-Revised; Boyle, Offord, Racine, Szatmari, & Sanford, 1993), developed to map directly on to DSM criteria. The Internalizing Symptoms scale includes items tapping depression and anxiety (generalized and separation), and the Externalizing Symptoms scale includes items for conduct disorder, oppositional defiance, and inattention/impulsivity. Evidence of the validity and reliability of the HBQ and BPI mental health symptom scales has been reported elsewhere (Ablow, et al., 1999; Essex, Boyce, et al., 2002).

To address the problem of the frequent co-occurrence of internalizing and externalizing problems in children, we used PCA to create Symptom Severity and Directionality scores, a procedure that has proven fruitful in our prior work (Essex et al., 2002). The Severity score contains all that the internalizing and externalizing scores have in common, and the Directionality score contains all that differentiates them. The Severity component reflects a continuum where a low score reflects low levels of both internalizing and externalizing symptoms and the highest scores reflect high levels of both. The Directionality component reflects the direction of symptoms toward externalizing (+) or internalizing (-) difficulties. The most crucial point is that the correlation of Severity and Directionality was 0, eliminating the problem of collinearity.

School Functioning. The HBQ and BPI's measures of school functioning include Academic Competence and School Engagement. Most Academic Competence items were modifications of the Mock Report Card (Pierce, Hamm, & Vandell, 1999) or drawn from the work of Eccles and colleagues (Frome & Eccles, 1998). The School Engagement scale, which incorporates intrinsic motivation and school liking, is based in part on items from the Teacher Rating of School and Social Adjustment (Kochenderfer & Ladd, 1996). The internal consistencies (coefficient alpha) for each of the three reporters (i.e., mother, teacher, child) exceeded 0.70.

First-Grade Teacher Factors

Measures of two teacher factors – years of teaching experience, and teacher education – were asked directly of first-grade teachers as part of their telephone interviews. Average years of teaching experiences was 17.54 years ($SD = 9.69$) with a range of 1 year to 39 years. For teacher education, 17% of the teachers had Bachelor's degree, 49% had some graduate experience, and the remainder (34%) had Master's Degree.

Results

Descriptive Statistics

Out of 244 participants, 19.7% were categorized as AV (25 boys, 23 girls), 24.2% as AGG (32 boys, 27 girls), 12.3% as VIC (13 boys, 17 girls), and 43.9% as NRM (51 boys, 56 girls). Means, standard deviations, and Pearson correlation coefficients for primary variables are shown in Table 1.

Differences in the 1st grade Aggression, Victimization, Mental Health Symptoms and School Functioning by Peer Subtypes

A series of univariate Analysis of Variance (ANOVA) tests were run to compare mean levels of first- and third-grade outcomes across the four aggressor/victim subtypes. Child gender was included as a covariate in all tests, and Bonferroni adjustments were made for multiple comparisons.

ANOVA results for concurrent overt and relational aggression across the aggressor/victim subtypes showed that there were significant overall differences, $F(3,240) \geq 84.64$, $ps = .000$ for overt and relational aggression. According to the results of Bonferroni t-tests, AV ($M_s=1.16, .97, SD_s=.1.11, 1.03$) showed significantly higher than AGG, VIC, and NRM

Table 1. Descriptive statistics and correlations among first-grade predictors and third-grade outcomes (Pearson r)^a

| | Mean (SD) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----------------------------------|--------------|---------|---------|---------|------|--------|------|---------|------|--------|
| 1. Child gender ^b | .00 (.50) | | | | | | | | | |
| 2. AV dummy ^c | -.05 (.40) | -.03 | | | | | | | | |
| 3. AGG dummy ^c | -.01 (.43) | -.05 | -.28*** | | | | | | | |
| 4. VIC dummy ^c | -.13 (.33) | .05 | -.19** | -.21*** | | | | | | |
| 5. Teacher education ^d | --- | -.00 | .02 | .01 | -.12 | | | | | |
| 6. Teacher experience | 17.54 (9.69) | -.09 | -.01 | .15* | -.09 | .25*** | | | | |
| 7. Symptom severity | -.02 (.92) | -.08 | .49*** | .06 | -.01 | -.04 | -.01 | | | |
| 8. Symptom directionality | .01 (.48) | -.39*** | .08 | .17** | -.12 | .04 | .12 | -.02 | | |
| 9. Academic competence | .00 (.99) | .01 | -.25*** | .04 | .04 | .04 | -.01 | -.51*** | -.00 | |
| 10. School engagement | -.02 (.95) | .16* | -.30*** | -.04 | .00 | .09 | .06 | -.61*** | -.03 | .45*** |

Note. ^a Variables 2-6 assessed at first grade, variables 7-10 assessed at third grade.

^b Child gender coded as boys = -.5, girls = +.5.

^c AV = aggressive victim, AGG = non-victimized aggressor, VIC = non-aggressive victim; AV, AGG, and VIC dummies coded as target subtype = +.75 and all other groups = -.25.

^d Teacher education coded as bachelor's degree = -1, some graduate work = 0, master's degree = +1.

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

and AGG ($M_s = .45, .58, SD_s = .78, .81$) were lower than AV but higher than the other groups. VIC ($M_s = -.55, -.60, SD_s = .38, .39$) were not different from NRM ($M_s = -.61, -.61, SD_s = .40, .37$) for two types of aggression. Victimization of AV ($M = 1.36, SD = .88$) was higher than that of the other groups; Victimization with VIC ($M = .81, SD = .53$) was lower than AV but significantly higher than that with AGG or NRM. As a non-victimized group, AGG ($M = -.45, SD = .37$) was not different from NRM ($M = -.66, SD = .40$) for victimization.

ANOVA analyses results found significant differences for Severity, $F(3,240) = 44.73, p < .000$ and Directionality, $F(3,240) = 5.27, p = .002$. Severity scores of AV ($M = 0.96, SD = .92$) was highest, those of NRM ($M = -.44, SD = .62$) was lowest and both those of AGG ($M = .05, SD = .64$) and VIC ($M = .03, SD = .65$) were in between. Directionality scores of AV ($M = .14, SD = .69$) or AGG ($M = .11, SD = .49$, externalizing in nature) were significantly different from those of VIC ($M = -.26, SD = .52$, internalizing in nature).

ANOVA analyses result revealed significant differences for Academic Competence, $F(3,240) = 3.45, p = .017$ and School Engagement, $F(3,240) = 13.00, p = .000$. Academic

Competence scores of AV ($M = -.44, SD = 1.10$) were significantly lower than those of NRM ($M = .09, SD = .98$). Moreover, School Engagement scores of AV ($M = -.71, SD = 1.39$) was lower than those of the other subtypes. They were not significantly different from each other ($M_s = .03, -.07, .30, SD_s = 1.39, .88, .72$ for AGG, VIC, and NRM respectively).

Differences in the 3rd Grade Mental Health Symptoms and School Functioning by the 1st Grade Peer Subtypes.

ANOVA results comparing third-grade mental health symptoms across the aggressor/victim subtypes are shown in the first half of Table 2. Group status predicted Severity, with AV showing significantly higher symptom levels than AGG, VIC, and NRM, and both AGG and VIC showing significantly higher symptom levels than NRM.

ANOVA results comparing third-grade school functioning across the aggressor/victim subtypes are shown in the second half of Table 2. Group status significantly predicted Academic Competence, with AV scoring significantly lower than AGG and NRM and marginally lower than VIC. Group status also significantly predicted School Engagement, with AV showing

Table 2. Summary of ANOVA results comparing first-grade aggressor/victim subtypes on third-grade mental health symptoms and school functioning

| | Mental Health | | School Functioning | |
|---------------------------------------|---------------------------|------------------------|--------------------------|---------------------------|
| | Symptom Severity | Symptom Directionality | Academic Competence | School Engagement |
| Aggressor/Victim Subtype (<i>F</i>) | 34.57 *** | 3.56 * | 5.19 ** | 10.65 *** |
| Child Gender (<i>F</i>) | 1.24 | 40.52 *** | .01 | 5.68 * |
| Mean (<i>SD</i>) by Subtype | | | | |
| AV | .90 (.89) ^{bcd} | .08 (.56) | -.49(1.05) ^{bd} | -.60(1.03) ^{bcd} |
| AGG | .07 (.90) ^{ad} | .15 (.44) | .07 (.96) ^a | -.09(.96) ^a |
| VIC | -.03 (.61) ^{ad} | -.14 (.52) | .10 (.79) | -.02(.82) ^a |
| NRM | -.47 (.92) ^{abc} | -.06 (.43) | .16 (.99) ^a | .28(.95) ^a |

Note. ^a Significantly different ($p < .05$) from AV.

^b Significantly different ($p < .05$) from AGG.

^c Significantly different ($p < .05$) from VIC.

^d Significantly different ($p < .05$) from NRM.

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

significantly lower levels than AGG, VIC, and NRM. In addition, child gender significantly predicted School Engagement, with girls ($M = .13, SD = .85$) exhibiting greater engagement than boys ($M = -.17, SD = 1.02$) on average.

Effect of First-Grade Peer Subtypes and Teacher Factors on Third-Grade Outcomes

Multiple regression analysis was used to specify the independent and joint influences of child gender, peer subtypes, and teacher factors on later mental health symptoms and school functioning. Prior to the multiple regression analysis, all independent variables were centered according to the approach recently suggested by Kraemer and Blasey (2004), where child gender was specified with boys = -.5 and girls = +.5. Aggressor/victim status was used to create three dummy variables. An AV dummy was specified with AV = +.75, AGG = -.25, VIC = -.25, and NRM = -.25. Similarly, an AGG dummy was specified with AGG = +.75 and the other groups = -.25, and a VIC dummy was specified with VIC = +.75 and the other groups = -.25. Teacher education level was recoded as follows: bachelor’s degree = -1, some graduate work = 0, and master’s degree = +1. Teacher experience (in years) was centered on the mean. For each regression analysis, the main effects of child gender, peer subtypes, and one of

teacher factors were entered in Step 1, along with a covariate of the corresponding 1st grade outcome. The two-way interaction terms between three dummy variables representing peer subtypes and one of teacher factors were entered in Step 2. Dummy variable coding is particularly appropriate for research in which one group is to be a reference group (i.e. NRM or teachers with average levels of education) and the others are to be compared with it (Cohen & Cohen, 1983; Hardy, 1993).

Regression analysis results showed that being AV in 1st grade were more likely to result in higher scores of Symptom Severity, lower scores of Academic Competence, or lower scores of School Engagement. Similarly, being AGG in 1st grade was more likely to result in higher scores of Symptom Severity, have positive scores (externalizing in nature) of Symptom Directionality, or lower scores of School Engagement. On average, girls tended to have negative scores (internalizing behavior in nature) while boys had positive scores (externalizing behavior in nature) of Symptom Directionality.

Neither main nor interaction effects were found for Teacher Experience in predicting Severity, Academic Competence, or School Engagement. However, a significant interaction was found between years of teaching experience and the AV dummy variable in the prediction of Directionality.

Table 3. Results of regression analyses predicting mental health symptom directionality and school engagement in third grade from aggressor/victim subtypes and teacher education in first grade

| | Symptom Directionality | | School Engagement | |
|----------------------------------|---|---------|--|----------|
| | β | t | β | t |
| First-grade control ^a | .48 | 8.13*** | .33 | 5.46*** |
| Child gender | -.17 | -2.96** | .12 | 2.13* |
| AV dummy | .05 | .84 | -.28 | -4.22*** |
| AGG dummy | .13 | 2.20* | -.14 | -2.22* |
| VIC dummy | .03 | .61 | -.07 | -1.15 |
| Teacher education | .10 | 1.64 | .13 | 2.22* |
| AV * teacher education | .12 | 2.15* | .20 | 3.15** |
| AGG * teacher education | -.01 | -.18 | .08 | 1.23 |
| VIC * teacher education | .09 | 1.48 | .07 | 1.05 |
| | $F(9,234) = 16.16, p < .001$ $R^2 = .38$ | | $F(9,234) = 9.64, p < .001$ $R^2 = .27$ | |

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

Figure 1. Interactive Effects of Aggressor/Victim Subtypes and Teacher Education on School Engagement: Mean (SD)

Among AV, mental health symptoms in third grade tended to be somewhat more internalizing in character if first-grade teachers had fewer years of experience and somewhat more externalizing if first-grade teachers had greater years of experience.

Neither main nor interaction effects were found for Teacher Education in predicting Severity or Academic Competence, but significant effects were found for Directionality and School Engagement as shown in Table 3. For symptom Directionality, a significant interaction was found between Teacher Education and the AV dummy variable. Among AV, Directionality in third grade tended to be somewhat more internalizing on average if first-grade teacher's highest level of education was a bachelor's degree and somewhat more externalizing on average if first-grade teachers had earned a master's degree.

In predicting third-grade School Engagement, a significant main effect was found for Teacher Education along with a significant interaction between Teacher Education and the AV dummy. The interaction is presented graphically in Figure 1, highlighting the finding that AV whose first-grade teachers had only a bachelor's degree had the lowest levels of School Engagement in third grade as compared with all other groups.

Discussion

Prior cross-sectional research suggests that children who are aggressors and/or victims in their peer relations are more likely to experience difficulties in a number of adjustment domains, with those children who are both aggressors and victims most at risk (Haynie et al., 2001; Hess & Atkins, 1998; Schwartz, 2000). Our findings indicate that one of the four subtypes, first-grade aggressive victims (AV) showed the worst levels of mental health symptom Severity, Academic Competence, and School Engagement not only concurrently but also two years later in third grade. Only for symptom Severity, though, did we find that AGG and VIC showed greater adjustment problems than NRM over time.

Notably, our findings revealed several interaction effects between AV status and both Teacher Education and Teacher Experience. Teachers' education levels had differential effects on mental health symptom Directionality and School Engagement among AV. Among AV in our sample, higher levels of first-grade Teacher Education were associated with a tendency toward externalizing more than internalizing. Additionally, among AV, higher levels of Teacher Education

were associated with greater school engagement two years later, and higher levels of first-grade Teacher Experience were associated with higher levels of Academic Competence.

Although data were not available in this study to examine processes by which first-grade Teacher Education may influence aggressive victims' School Engagement, existing research suggests that variation in teaching styles and techniques may be partially responsible. Bachelor's level teachers may not have the same training in or implementation of the most effective instructional practices and classroom management strategies (Darling-Hammond, 2000), which can affect both aggressor/victim processes and the extent to which children come to like school, develop appropriate motivation, and engage in classroom activities during the earliest school years (Aber et al., 2003; Catalano et al., 2003; Ialongo et al., 1999; Wentzel, 2002). Given their increased risk for adjustment difficulties, AV may be particularly susceptible to less-than-optimal teaching practices.

Our interest here was in the structural features of the first-grade teachers that would be readily amenable to intervention in order to positively affect the aggressor/victim subtypes most at risk. Future work should also consider classroom processes that may play a role in shaping the adjustment trajectories for children of different aggressor/victim statuses. The teacher-child relationship in the early school years has also been demonstrated to affect both short- and longer-term adjustment for children (e.g., Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002), and teachers' attitudes toward aggression in the classroom can influence peers' acceptance or rejection of aggressors (Chang, 2003). The overall level of classroom aggression also can influence children's adjustment: in classrooms with high levels of aggression, boys' aggressive behavior has been *positively* associated with an index of social preference (Stormshak et al., 1999), though boys who were more aggressive in first grade were at greater risk of being highly aggressive in sixth grade if their first-grade classroom was characterized by high levels of aggression (Kellam, Ling, Merisca, Brown, & Ialongo, 1998). Applications of these findings on classroom processes to the study of aggressive/victim subtypes may yield further insights into ways that the developmental trajectories of children, in particular AV, may be positively affected.

A number of limitations, however, should be noted. First, we do not take into account potential processes that may play a role in shaping the adjustment trajectories for children of different aggressor/victim statuses, such as the teacher-child relationship, teachers' attitudes toward children's aggression,

and the overall level of aggression in the classroom. The potential roles of process variables or proximal variables should be included in future research. Second, although this study utilized longitudinal data covered a period of almost 3 years, causality could not be established, and it will be important to delineate the causal pathways by which children's early peer experiences and teacher factors influence on long-term mental health symptoms and school functioning.

First grade is a critical time in which the foundation for children's future mental health and school success may be established. These findings suggest not only that first-grade teacher education and experience can affect child outcomes over time, but that teachers with more extensive training and experience may be most beneficial for children in particularly vulnerable groups such as AV. We must delineate prevention and intervention strategies focused on the preschool years and the transition into elementary school as we advocate for policies that target children at risk for social, academic, and mental health challenges. Aggression-targeted interventions in the United States (Catalano et al., 2003; Henry, 2000; Ialongo et al., 1999; Reid, Eddy, Fetrow, & Stoolmiller, 1999) and elsewhere (Olweus, 1993) have demonstrated success in diminishing aggression and improving school functioning during the early primary grades. Increased attention to the various combinations of aggression and victimization—both relational and overt—along with key aspects of the classroom environment are essential to ensuring the healthy development of children in the early school years.

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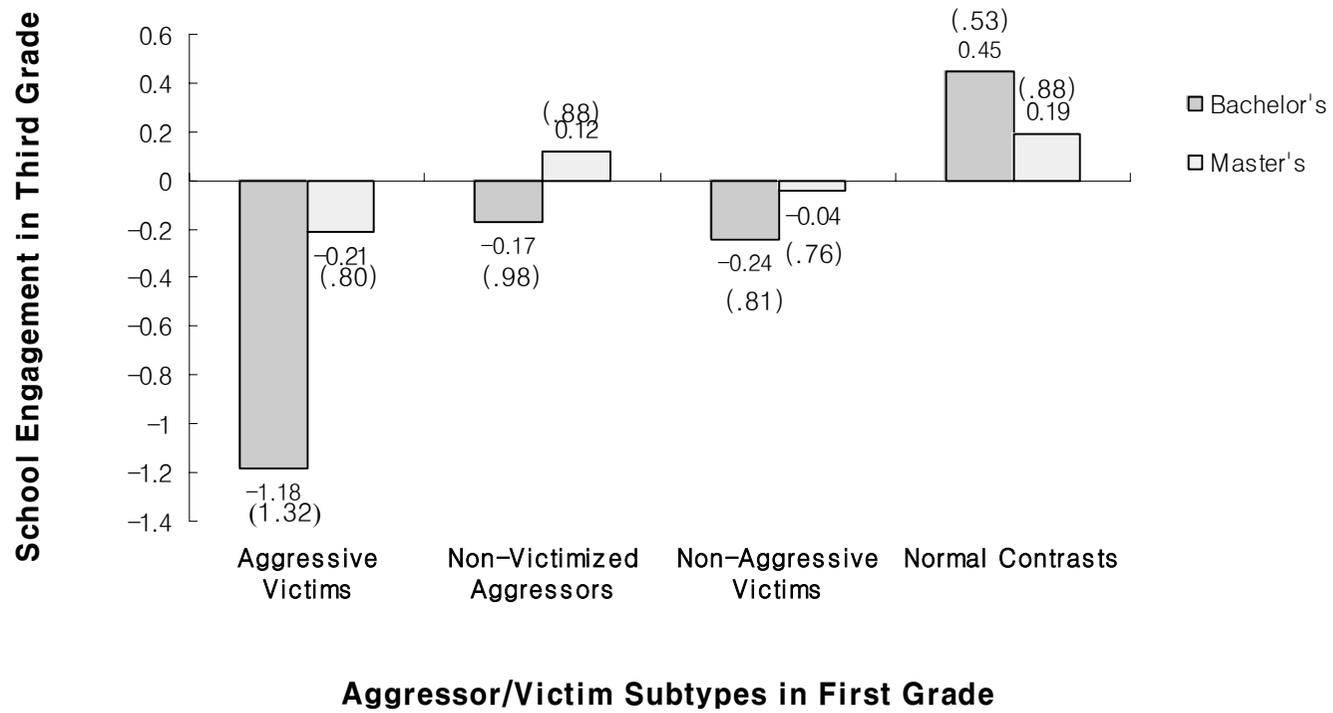


Figure 1. Interactive Effects of Aggressor/Victim Subtypes and Teacher Education on School Engagement: Mean (SD)