

Bullying Involvement and the School Adjustment of Rural Students With and Without Disabilities

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Abstract

Bullying involvement status (i.e., bully, victim, bully–victim) and school adjustment were examined in a sample of 1,389 fifth graders (745 female, 644 male) including 145 special education students who were served in general education classrooms for at least 50% of the day. The sample was drawn from 35 rural schools in seven states across all geographic areas of the United States. School adjustment difficulties including internalizing and externalizing behavior problems were most pronounced in students who were identified as bully–victims (students who were identified as both victims and perpetrators of bullying). In contrast, bullies tended to have more positive interpersonal characteristics and fewer negative ones than youth who were identified as victims or bully–victims. Furthermore, compared to their nondisabled peers, students who received special education services had elevated rates of involvement as victims and bully–victims, but not as bullies. Implications for intervention are discussed.

Keywords

bully, victim, school adjustment, special education

Bullying involvement has been linked to a range of school adjustment problems (Espelage & Swearer, 2003; Zins, Elias, & Maher, 2007) and subsequent poor mental health outcomes in early adulthood (Sourander, Ronning, & Brunstein-Klomek, 2009). Although the population of students who are involved in bullying extends well beyond youth who are receiving special education services for emotional and behavioral disorders (EBD), children and adolescents who are identified as bullies, victims, and bully–victims tend to have externalizing and/or internalizing problems that are consistent with EBD (Gumpel, 2008; McConville & Cornell, 2003; Stein, Dukes, & Warren, 2007; Swearer, Grills, Haye, & Cary, 2004). In addition, the types of school adjustment problems that are associated with bullying involvement tend to be elevated for students who are receiving special education services, and students with disabilities are at increased risk for bullying involvement (Estell et al., 2009; Mishna, 2003; Rose, Espelage, & Monda-Amaya, 2009).

However, few studies have examined whether the school adjustment problems for students who are involved in bullying are similar for nondisabled youth and youth who are in special education. Furthermore, it is not clear as to whether distinct subtypes of involvement in bullying (i.e., bully, victim, bully–victim) are related to distinct types of school adjustment problems in students who receive special

education services. Information along these lines may help clarify risk for bullying involvement in youth with disabilities and may also help guide the development of intervention programs to promote school adjustment and reduce bullying involvement for all students, including students who are receiving special education services. Accordingly, the current study builds from developmental science and social interactional perspectives to examine bullying involvement in a sample of rural elementary students.

Conceptual Framework

As suggested above, youth who are involved in bullying and youth with disabilities tend to share a variety of risk problems in the academic, behavioral, and social domains. Furthermore, it is possible to identify distinct interpersonal characteristics that are associated with subtypes of bullying involvement (e.g., Hanish & Guerra,

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2004; Schwartz, 2000). In addition, distinct configurations of interpersonal risks have been linked to school adjustment problems in students who receive special education services (Farmer, Hall, et al., 2010; Farmer, Rodkin, Pearl, & Van Acker, 1999). The concept of subtypes and configurations is consistent with development science and social interactional conceptual frameworks. These frameworks may provide a useful guide for the development of interventions for students who experience school adjustment problems, including youth who receive special education services.

Developmental science is an integrative discipline of the social and biological sciences that is concerned with clarifying developmental factors and processes that contribute to human growth, adaptation, and functioning across the life span (Bergman, Cairns, Nilsson, & Nystedt, 2000; Bronfenbrenner & Evans, 2000; Cairns, Elder, & Costello, 1996). According to this conceptual framework, individuals develop as an integrated whole with multiple developmental subsystems (e.g., behavioral, biophysical, cognitive, cultural ecological, emotional, sociological) operating as a coactive system with each subsystem bidirectionally affecting the contributions of other subsystems and collectively contributing to the overall adaptation of the individual (Cairns, 1979; Gottlieb, 1992; Magnusson, 2000; Sameroff, 1983). From this vantage, youth adjustment problems tend to reflect distinct configurations of correlated risks, as multiple factors contribute to distinct patterns of school functioning (Cairns & Cairns, 1994; Estell et al., 2007; Roeser & Peck, 2003).

Within a developmental science framework, social interactions play a critical role in developmental functioning and adaptation. From a social interactional perspective, patterns of behavior develop and consolidate as individuals coordinate and synchronize their actions with each other (Cairns, 1979; Patterson & Reid, 1984). On this score, Cairns and his colleagues posit that through processes of social interaction, behavior operates as a leading edge in development by linking internal (i.e., biophysical, cognitive, emotional, genetic, psychological) and external (i.e., cultural, ecological, sociological) subsystems in a manner that aligns their functioning with each other (Cairns, 1991; Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Cairns, Gariépy, & Hood, 1990; Gariépy, Gendreau, Cairns, & Lewis, 1998). Consequently, through patterns of social interaction, youth develop social roles and behaviors that correspond with their attributes, competencies, and values (Cairns, 2000; Farmer, Xie, Cairns, & Hutchins, 2007).

The developmental science and social interactional frameworks provide a potentially important vantage for understanding bullying involvement and associated adjustment problems in school. Within the school context, elementary students often develop hierarchical classroom

social structures that consist of distinct peer groups and social roles that correspond with specific social and behavioral characteristics (Adler & Adler, 1996). As outlined below, subtypes of youth who are involved in bullying have distinct social interaction patterns and positions in the social structure that are linked to other interpersonal characteristics including academic competence, internalizing and externalizing behavior problems, social competence, athletic ability, physical attractiveness, and level of perceived popularity. Such characteristics affect the social opportunities and types of interactions that youth are likely to become engaged in, and, over time, patterns of problematic social interaction are likely to consolidate the social roles, reputations, and relationships that elementary students experience (Coie, 1990; Farmer, Farmer, Estell, & Hutchins, 2007; Hymel, Wagner, & Butler, 1990). Thus, by clarifying whether distinct configurations of school adjustment problems are associated with subtypes of bullying involvement in students both with and without disabilities, it may be possible to generate new insights to guide the development of interventions aimed at reducing bullying involvement and corresponding school adjustment difficulties. Furthermore, this approach may be particularly useful for clarifying the bullying involvement risk of students in special education and for developing corresponding interventions that include an integrative focus on the correlated risks (i.e., academic, behavioral, social) that contribute to their role in the peer victimization process.

Consequently, the intervention relevance of examining the relationship between bullying subtypes and interpersonal competence configurations rests in providing new insights into how patterns of students' level of adjustment in the academic, behavioral, and social domains are linked to their social roles (i.e., type of bullying involvement in the school context). Bullying interventions typically focus on the social characteristics of the students involved or on the broader social context in which bullies and victims are embedded. However, how a student is involved in bullying may reflect nuanced relationships of specific competencies and risks, which in turn, may elicit distinct patterns of interaction from peers. By understanding how youth in distinct interpersonal competence risk configurations are differentially involved in bullying, it may be possible to clarify distinct functions of social behavior that are related to bullying subtypes. Therefore, as a first step, this study examines how interpersonal competence configurations are related to students' bullying involvement and their perceptions of school (i.e., bonding and valuing). Such information can guide future research that focuses on behavioral observations to clarify distinct patterns of social interactions and peer supports. A program of research along these lines is necessary to clarify the social functions of bullying involvement and to develop corresponding interventions that are responsive

to the differential factors that support the patterns of behavior in bullying involvement subtypes.

Bullying Involvement and School Adjustment

Across the United States, 30% of children and youth report being involved in bullying in school as a perpetrator, victim, or both (Nansel, Overpeck, Pilla, Ruan, & Simons-Morton, 2001). On this count, three distinct types of bullying involvement have been identified (Gumpel, 2008; Schwartz, 2000; Solberg, Olweus, & Endresen, 2007; Veenstra et al., 2005). The term *bully* has been used to refer to youth who repeatedly perpetrate physical or social harm against peers; the term *victim* refers to youth who are routinely bullied by peers, and the term *bully-victim* refers to youth who both perpetrate bullying against peers and are bullied by peers. Although youth in the different bullying involvement types all experience some form of school adjustment difficulties, each of the subtypes appears to have distinct types of adjustment problems.

Both bullies and bully-victims have been found to have elevated levels of externalizing behavior problems. However, internalizing problems are associated with being a victim or bully-victim (Andreou, 2000; Boivin & Hymel, 1997; Gumpel, 2008; Hodges, Malone, & Perry, 1997; McConville & Cornell, 2003; Toblin, Schwartz, Gorman, & Abou-Ezzeddine, 2005). Furthermore, many youth who are victimized, including bully-victims, tend to experience a range of academic and social difficulties and become unengaged in school activities (Berthold & Hoover, 2000; Buhs, Ladd, & Herald, 2006; Esbensen & Carson, 2009). In fact, multiple risk profiles (i.e., internalizing and externalizing behavior problems and academic and social difficulties) that reflect the characteristics of bully-victim status have been linked to low levels of school valuing and school bonding and eventual school dropout (Janosz, LeBlanc, Boulerice, & Tremblay, 2000; Suh, Suh, & Houston, 2007). Thus, clarifying the linkages among students' bullying involvement status, their emotional and behavioral adjustment, and their bonding and valuing of school may be an important step in the establishment of intervention programs that address differential risks for involvement in peer victimization and corresponding school difficulties.

Bullying Involvement of Students Receiving Special Education Services

It is well documented that students who receive special education services are at increased risk for peer victimization (Ingesson, 2007; Nabuzoka & Smith, 1993; Nadeau & Tessier, 2006; Norwich & Kelly, 2004). Less work has focused on clarifying the degree to which students with disabilities are involved in the perpetration of bullying in elementary

school settings. A study in Finland found that compared to nondisabled peers, fifth grade students with learning disabilities were more likely to be identified as victims and a subgroup of students with learning disabilities were identified as bully-victims (Kaukiainen et al., 2002). In an examination of bullying involvement in rural and suburban fifth grade classrooms in the United States, students with mild disabilities were viewed by both teachers and peers as being likely to be bullies, whereas teachers also viewed students with mild disabilities as having elevated levels of peer victimization (Estell et al., 2009). A national study of bullying in middle schools and high schools found that students with disabilities were more likely to report higher rates of peer victimization and higher rates of the perpetration of bullying as compared to nondisabled peers (Rose et al., 2009).

Building from research suggesting that youth with disabilities have elevated rates of involvement in bullying and from what is known about linkages between bullying involvement and school adjustment, there is a need to examine the bullying status of students who receive special education services in relation to their school adjustment. Also, there is a need to examine if the school adjustment difficulties of students who receive special education services are distinct from the difficulties experienced by nondisabled students who are involved in bullying. It is possible that receiving special education services places students at risk for bullying involvement beyond risks that are associated with bullying involvement in nondisabled youth.

Accordingly, the goal of the current study was to examine bullying involvement and school adjustment in a sample of fifth grade rural elementary school students, including special education students who were included in general education classes. Four specific research aims guided this work. The first aim was to examine whether students receiving special education services have elevated levels of bullying involvement as bullies, victims, and bully-victims as compared to nondisabled students. The second aim was to explore whether teacher ratings of students' interpersonal competence (i.e., academic, behavioral, social factors) are differentially related to bullying involvement subtypes for both nondisabled students and their classmates who receive special education services. The third aim was to investigate whether distinct configurations of interpersonal competence are differentially associated with bullying involvement status for both special education students and their nondisabled peers. The fourth aim was to clarify whether school bonding and school valuing are related to teachers' ratings of students' interpersonal competence and their bullying involvement status for both nondisabled students and their peers who receive special education services. Analyses were conducted separately for boys and girls because there tend to be gender differences in social dynamics and bullying involvement.

Method

This study was conducted as part of a national evaluation of an intervention program aimed at enhancing the school adjustment of rural early adolescents. The current investigation uses data that were collected in the spring of the baseline assessment year (i.e., the year prior to intervention implementation). Therefore, data reported here make it possible to examine the relationship between bullying involvement and school adjustment prior to any intervention implemented as part of this research program.

The broader intervention evaluation was conducted as a cluster randomized trial with a focus on rural districts that were in remote or low-income rural school districts across the United States. States were randomly selected within geographic regions that have high concentrations of rural school districts (e.g., Appalachians, Midwest, Northeast, Southeast, Southwest, and West). School districts were identified as possible research sites based on census locale codes that indicated they were in rural settings (i.e., Locale Codes 6, 7, and 8) and were randomly identified as potential sites for the selection of matched pairs. Schools in close geographic proximity with similar demographic, economic, and school performance data were identified as matched pairs. For pairs in which both schools agreed to participate, one school was randomly selected as an intervention school and the other as a control school. Recruitment of students involved sending consent letters to all parents of students in the participating schools. All teachers in participating schools agreed to participate in the study.

Procedures

Following a well-established data collection protocol that has been used with elementary-school-age students for two decades, data were collected in a group administration format (e.g., Ahn, Garandeau, & Rodkin, 2010; Farmer et al., 2002; Jones & Estell, 2010). Consented participants were gathered in their school's cafeteria and were assigned alternating seats such that no student was directly beside or across from another student. They were informed about confidentiality and told that they were not required to participate and that they could withdraw from the study at any time. The instructions for completing the surveys and the individual survey items were read aloud by a trained administrator. Additional research staff provided mobile monitoring to assist students. Small group or individual assessments were conducted with students whom teachers identified as having reading or spelling difficulties. This was done in separate administrations that did not draw attention to the students. While students completed surveys, their teachers were asked to complete brief assessments of the participants. Teachers received financial compensation for their

participation, and students received compensation in the form of special pencils.

Sample

Students and teachers from 35 schools in seven states across all geographic regions of the United States participated in this study. The sample consisted of 1,389 students (745 female), of whom 145 were identified as receiving special education services for at least 50% of school day in general education classrooms (54 females). This included students identified with learning disabilities (LD), other health impairments (OHI), speech impairments, mental retardation, EBD, autism spectrum disorders, visual impairments, and traumatic brain injury. The ethnic and racial composition of the students in the sample was 48.7% Caucasian, 35.4% African American, 7.6% Latino, 1.0% Native American, and 7.3% other ethnicities. Of the 35 schools, 12 were K–8 or K–12 schools and 23 were elementary schools.

Although data were collected regarding the special education labels of specific students, for the purposes of analysis students were categorized as either nondisabled or receiving special education services. The decision to aggregate students with disabilities into a single group of students who received special education services was based on three related considerations that are described below.

First, classification into diagnostic categories varies from state to state—and even from one locale to another. It has been documented that the prevalence of specific disability categories varies across states (Hallahan et al., 2007; Truscott, Catanese, & Abrams, 2005) and even within states (Truscott et al., 2005). This suggests that diagnostic criteria to establish special education classifications may be interpreted in different ways in different places. The differences in interpretation may lead to variation in the characteristics of children in specific categories across states and locales. In addition, variation in diagnostic criteria at the local level was established anecdotally during data collection for this study. For example, several teachers reported that their school no longer used EBD as an identification label, opting instead for the labels of LD or OHI, as these were perceived as more palatable and less stigmatizing. Therefore, although diagnostic labels were identified for the students receiving special education services, this does not guarantee that the students within specific categories have similar behavioral, social, or physical characteristics. Consequently, efforts to draw conclusions from the current data about a specific special education category may provide inaccurate views because of differences across the sample in terms of how students with similar characteristics were classified.

Second, even in a large national sample such as this, the numbers of students within each specific disability

classification do not provide sufficient power to examine differential effects across special education categories. Furthermore, the number of students in each of the categories varies widely. The potential for erroneous conclusions about different special education labels is greatly magnified in light of combining the extreme variation in sample sizes of different special education classifications with the possibility that some students who are identified in a specific category would be identified in another category within a different school in this sample. In other words, there is a reasonable possibility that either differences or a lack of differences between one category and another would be attributable to the sample characteristics and not to actual differences between the two categories.

Third, the focus of this study was not on disability status but rather on clarifying the relationship between bullying involvement and school adjustment of students with disabilities and determining whether this relationship is the same for students with disabilities as it is for nondisabled students. The overall aim here is to determine whether distinct types of bullying involvement are related to distinct types of school adjustment problems in students who receive special education services. If so, this would suggest a need for social intervention services for students with disabilities that center on the type of bullying involvement they are engaged in and not their special education classification. Therefore, this is not a question that is specific to different special education classifications. Consequently, aggregating the different disability categories is the most appropriate way to address this research aim.

Measures

The data collected for this study included multi-informant measures designed to capture both students' and teachers' perspectives of participants' school adjustment. Teachers completed the *Interpersonal Competence Scale-Teacher* and the Social Adaptation subscale for each participating student. Participating students completed assessments of their bonding with school and their valuing of school as part of a broader survey of their perceptions of the school and classroom social context as well as a peer nomination questionnaire. Teacher ratings and peer nominations of bullying and victimization were used to identify bullying involvement subtypes.

Interpersonal Competence Scale-Teacher (ICS-T). Teachers completed the ICS-T for each participant in their class. The ICS-T is an 18-item questionnaire consisting of 7-point Likert-type scales (Cairns, Leung, Gest, & Cairns, 1995). The ICS-T yields composite scores on the following subscales: Aggression ($\alpha = .84$; composed of "always argues," "gets in trouble," and "always fights"), Popularity ($\alpha = .83$; composed of "popular with boys," "popular with girls," and

"lots of friends"), Academic Competence ($\alpha = .80$; composed of "good at math" and "good at spelling"), Affiliative ($\alpha = .74$; composed of "always smiles" and "always friendly"), Internalizing ($\alpha = .52$; composed of "always sad," "always worry," and "very shy"), and Olympian ($\alpha = .78$; composed of "good at sports," "good-looking," and "wins a lot"). Three-week test-retest reliability coefficients are moderately high (i.e., .80-.92; Cairns et al., 1995) and are reasonably comparable to those of other measures involving teacher ratings (e.g., .92 for 15 day test-retest with the *Teacher Report Form*; Achenbach, 1991). One-year coefficients range from .40 to .50 and are comparable to 12-month test-retest coefficients for sociometric status and peer behavioral assessments (i.e., Coie & Dodge, 1983). These lower scores are also generally consistent with the 4-month test-retest mean score (.66) of the *Teacher Report Form* (Achenbach, 1991). It should be noted that test-retests were conducted across grade levels such that both the teacher respondents and the classroom contexts were different across the two assessments (Cairns et al., 1995). Therefore, these annual retest coefficients reflect developmental, respondent, and context variability.

The ICS-T has convergent validity with direct observation, student records (i.e., grades, discipline reports), and peer nomination measures (Cairns & Cairns, 1994; Cairns et al., 1995; Farmer, Irvin, Thompson, Hutchins, & Leung, 2006). Composite factors were identified that corroborated the original factor extraction (see Cairns et al., 1995). The subscale scores were obtained by computing the unweighted averages of the items that made up each factor. The items are positively coded so that a higher score reflects increased levels of the measured construct. For example, a high score on the popularity factor indicates a high level of popularity, whereas a low score on the aggressive factor indicates a low level of aggression.

School valuing. School valuing was measured by Voelkl's (1996, 1997) widely used scale of the perceived worthiness of school to one's future. Students rate their agreement with items such as "most of the things we learn in class are useless." Reliability, measured by Cronbach's alpha, exceeds .80 across studies; construct validity has been established through high correlations with academic achievement and class participation (Finn & Frone, 2004; Voelkl, 1996, 1997).

School bonding. School bonding was measured by Hagborg's (1998) *Psychological Sense of School Membership-Brief* (PSSM-B) scale. Designed as a short version of Goodenow's (1993) PSSM scale, the PSSM-B focuses on the affective ties students feel toward their schools. Students rate their agreement with statements such as "I am treated with as much respect as other students." Cronbach's alpha for the scale is in the acceptable range across diverse samples of adolescents (e.g., Hagborg, 1998; Hamm,

Farmer, Robertson, et al., 2010; Hamm, Farmer, Dadisman, Gravelle, & Murray, in press); strong test-retest reliability has been demonstrated, as has construct validity with strongly positive correlations with motivation and educational aspirations (Hagborg, 1998).

Social Adaptation subscale. Teachers' perceptions of participants' social adaptation were assessed with the Social Adaptation subscale (Farmer, Estell, Bishop, et al., 2003) of the ICS-T (Cairns et al., 1995). Using a 7-point Likert-type scale similar to the ICS-T, this measure included eight items: "attention problems," "class leadership," "bullied by peers," "manipulates friendships," "involved in extracurricular activities," "liked by peers," "hyperactive," and "bullies peers." A higher score on a social adaptation item indicates a higher level on the designated attribute. These items have been shown to have moderate to high 6-month test-retest reliability coefficients (.49-.72) and are associated with other measures of student adaptation including the *Teacher Report Form* (Achenbach, 1991) and peer behavioral nominations (Farmer, Estell, Bishop, et al., 2003; Farmer et al., 2009; Robertson et al., 2010). Two items of this subscale, "bullies peers" and "bullied by peers," were used in conjunction with peer nominations to identify bullies and victims (see below).

Data Reduction

Bullying involvement subtypes. Peer-nomination and teacher assessment data were used to classify students into one of four mutually exclusive bullying involvement subtypes (i.e., bully, victim, bully-victim, and not identified). Peer nominations for *bully* and *picked on* and teacher ratings for *bullies peers* and *bullied by peers* were first standardized by gender. Teacher ratings were then standardized by classroom. Then, to be consistent with other studies that distinguish among bullies, victims, and bully-victims (e.g., Estell et al., 2007; Schwartz, 2000; Vaillancourt, Hymel, & McDougall, 2003), a 0.50 *SD* cutoff was used to identify youth who were above average on bullying or victimization. Participants who had a *z* score greater than +0.50 on either *bully* or *bullies peers* and a *z* score of less than or equal to +0.50 on both *picked on* and *bullied by peers* were classified as bullies. Participants who had a *z* score greater than +0.50 on either *picked on* or *bullied by peers* and a *z* score of less than or equal to +0.50 on both *bully* and *bullies peers* were classified as victims. Participants who had a *z* score greater than +0.50 on either *bully* or *bullies peers* and had a *z* score of greater than +0.50 on either *picked on* or *bullied by peers* were classified as bully-victims. Participants who had a *z* score less than or equal to +0.50 on all four measures were classified as not identified.

Interpersonal competence configurations. Interpersonal competence configurations were derived using standard clustering procedures to identify subtypes of students

using teacher-reported behavioral data. For these analyses, preliminary behavioral configurations were derived applying Ward's (1963) clustering algorithm using the six ICS-T factors (Aggressive, Popular, Academic, Affiliative, Olympian, and Internalizing) as inputs, after these scores were standardized by gender. Configurations were generated separately for boys and girls. Ward's method uses squared Euclidian distances between respondents' input items to determine homogeneous subgroups of students. The number of configurations to retain was decided by examining screen plots of distance coefficients as a function of the number of configurations at each agglomerative step as well as practical considerations such as cell size, theoretical interpretability, and utility (cf. Aldenderfer & Blashfield, 1984; Bergman, Magnusson, & El-Khoury, 2003). The cluster centers obtained from the initial Ward's method clusterings were then used as start or "seed" values in a k-means relocation cluster analysis to form more homogeneous subgroups. Analyses indicated that a six-cluster solution was optimum for boys whereas a five-cluster solution was optimum for girls. In both cases, the inclusion of more clusters did not increase explanatory power. The clusters are shown in Tables 1 and 2. The six boy clusters were as follows:

1. *Unengaged boys*: Average scores on Affiliative; above average scores on Internalizing; below average scores on Popularity, Olympian, and Aggression; well below average scores on Academic Competency
2. *Studious boys*: Above average scores on Affiliation, Academics, and Internalizing; below average scores on Popularity, Olympian, and Aggression
3. *Tough boys*: Above average scores on Popularity, Olympian, Affiliative and Aggression; below average scores on Academics and Internalizing
4. *Aggressive boys*: Well above average scores on Aggression; below average scores on Popularity, Olympian, Affiliative, and Internalizing; average scores on Academics
5. *Multirisk boys*: Well above average on Internalizing; above average on Aggression; well below average on Popularity, Olympian, Affiliative; below average on Academic Competency
6. *Model boys*: Well above average scores on Popularity, Olympian, Affiliative, and Academic Competence; well below average scores on Internalizing and Aggression

The five girl clusters were as follows:

1. *Aggressive girls*: Well above average scores on Aggression; below average scores on Popularity, Olympian, Affiliative, Academics, and Internalizing

Table 1. Boys' Interpersonal Competence Configurations

Clustering variable	Unengaged		Studious		Tough		Aggressive		Multirisk		Model	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
ICS-T factor												
Aggressive	-0.42	0.69***	-0.65	0.64***	0.27	0.73***	1.09	0.60***	0.38	0.98*	-0.89	0.66***
Academic	-1.14	0.47***	0.54	0.57***	-0.25	0.81**	-0.11	0.85	-0.44	0.98**	1.19	0.41***
Affiliative	0.01	0.79	0.18	0.70**	0.48	0.67***	-0.73	0.74***	-1.59	0.88***	0.88	0.59***
Popular	-0.57	0.68***	-0.17	0.67*	0.75	0.60***	-0.41	0.71***	-1.59	0.58***	1.04	0.61***
Olympian	-0.61	0.70***	-0.26	0.61***	0.60	0.69***	-0.24	0.71***	-1.54	0.73***	1.12	0.64***
Internalizing	0.61	0.83***	0.50	0.74***	-0.68	0.64***	-0.16	0.68**	1.52	0.81***	-0.74	0.74***
Cluster <i>n</i>	97		111		134		137		48		102	

N = 629 boys. Cells contain means and standard deviations on Interpersonal Competence Scale–Teacher (ICS-T) clustering variables for corresponding interpersonal competence configuration. *p* values are for *t* tests of the mean (vs. a value of 0).

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

Table 2. Girls' Interpersonal Competence Configurations

Clustering variable	Aggressive		Studious		Affiliative internalizing		Multirisk		Model	
	M	SD	M	SD	M	SD	M	SD	M	SD
ICS-T factor										
Aggressive	1.33	0.69***	-0.59	0.48***	-0.36	0.63***	0.25	1.09*	-0.33	0.74***
Academic	-0.25	0.82***	0.54	0.057***	-1.21	0.65***	-0.72	0.87***	0.72	0.62***
Affiliative	-0.58	0.76***	0.23	0.70***	0.30	0.64***	-1.52	0.80***	0.74	0.56***
Popular	-0.21	0.79**	-0.07	0.72	-0.48	0.71***	-1.22	0.71***	1.04	0.53***
Olympian	-0.19	0.71**	0.04	0.65	-0.70	0.65***	-1.16	0.77***	1.02	0.65***
Internalizing	-0.14	0.76*	0.23	0.68***	0.45	0.80***	1.24	0.79***	-0.92	0.66***
Cluster <i>n</i>	143		178		113		92		201	

N = 727 girls. Cells contain means and standard deviations on Interpersonal Competence Scale–Teacher (ICS-T) clustering variables for corresponding interpersonal competence configuration. *p* values are for *t* tests of the mean (vs. a value of 0).

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

2. *Studious girls*: Above average scores on Academic Competence, Internalizing, and Affiliative; below average scores on Aggression; average scores on Popularity and Olympian
3. *Affiliative-internalizing girls*: Above average scores on Affiliative and Internalizing; below average scores on Popularity, Olympian, and Aggression; well below average scores on Academics
4. *Multirisk girls*: Well above average on Internalizing; above average on Aggression, well below average on Popularity, Olympian, Affiliative; below average scores on Academic Competency
5. *Model girls*: Well above average scores on Popularity, Olympian, Affiliative, and Academic Competence; well below average scores on Internalizing; below average scores on Aggression

Number of positive and negative behaviors. Measures of the number of positive and negative behaviors characterizing each student were derived from the ICS-T factors as an alternate way of teasing out information contained in the academic interpersonal competency configurations. These measures were derived by counting up the number of

positive (protective) and number of negative (risk) factors each student was characterized by, relative to her or his same-sex peers. To generate these measures, the ICS-T raw scores was transformed to gender-standardized (i.e., gender-normed) ICS-T *z* scores that had means of zero and standard deviations of one. Students then received a count of one positive behavior for each of the following gender-standardized ICS-T factors for which they had a score of less than 0.50: Popularity, Academics, Affiliative, Olympian. Students further received a count of one positive behavior for each of the following gender-standardized factors for which they had scores of less than 0.50: Aggression, Internalizing. The number of negative behaviors was generated in a parallel fashion, with students receiving a count of one negative behavior for each of the following gender-standardized factors for which they had a score of greater than 0.50: Popularity, Academics, Affiliative, Olympian. Students further received counts of negative behaviors for each of the factors Aggression and Internalizing if they had gender-standardized scores of greater than 0.50 for either. Students' number of net positive behaviors was then derived by subtracting their number of negative from their number of positive behaviors.

Results

Analytic Approach

Generalized linear models (GLMs; e.g., McCulloch & Searle, 2001) were used to analyze the relationship among bullying involvement, special education status, and school adjustment variables (ICS-T scores, interpersonal competence configurations, school belonging, school valuing, etc.). This involved utilizing link functions appropriate for the dependent variable of interest and applying estimators that adjusted parameter standard errors and significance tests for the nonindependence of observations in the sample. Multinomial logistic regression models were used when bullying involvement was the dependent variable. Regression models for normally distributed dependent variables were used when ICS-T raw factors or number of net positive behaviors were the outcomes of interest. Negative binomial regression models were used when the dependent variable had a count distribution (as was the case for the number of positive and number of negative behaviors measures).

GLMs were fit in two series. For the first series of models, the aim was to identify differences in behavioral outcome measures using bullying involvement subtypes (and, where relevant, ICS-T factors) as predictors. Here the “not involved” bullying involvement subtype was used as the reference group. Standard likelihood ratio tests (Agresti, 2002; Long, 1997) were then applied in a stepwise, forward-fitting fashion to discern whether or not the coefficients for the two bullying involvement types with the largest (or smallest, as appropriate) coefficients statistically differed from one another for each of the dependent variables (or dependent variable contrasts in the case of our multinomial logistic regression models) at the $\alpha = .05$ level. This made it possible to discern whether or not the bullying involvement type with highest (or lowest) mean level on each outcome measure differed from the type with the next highest (or lowest) mean level or response relative to the not involved reference category.

In the second series of models, the same GLMs examined for the first series of analyses were used but included special education status as a covariate. Then, likelihood ratio tests were applied in a stepwise, forward-fitting fashion to evaluate the statistical significance of interaction effects (e.g., Baron & Kenny, 1986) between special education status and the predictor variables featured in the first series of models ($\alpha = .05$). The second series of models therefore made it possible to assess whether or not the effects of predictor variables (i.e., bullying involvement type, ICS-T scores) varied by disability status. Because the social worlds of boys and girls are known to differ, both series of models were estimated separately for boys and girls.

Bullying Involvement and Interpersonal Competence

Tables 3 and 4 contain the results obtained from regressing each of the ICS-T factors on bullying involvement subtype for boys and girls, respectively. The results in Table 3 indicate that for boys, bullies were statistically different from not involved boys (the reference group) with respect to the Aggression, Academic, Affiliative, and Internalizing factors. Subsequent likelihood ratio tests indicated that bullies were not statistically different from bully-victims with regard to Aggression. Victims, along with bully-victims, were lowest of all bullying involvement types on the Popularity, Academic, and Olympian measures. Boy bully-victims were the lowest of all three bullying involvement types on the Affiliative factor, whereas boy victims were highest on Internalizing.

Table 4 contains the corresponding results for girls. The relationships between bullying involvement and teacher ratings of student interpersonal competence were highly similar across the boy and girl subsamples, although the bullying involvement subtypes were a bit more distinct from one another for girls than for boys. For example, victims and bully-victims were again found to be lowest of all bullying involvement types on the Popularity and Academic factors in the girl subsample, yet girl bully-victims were highest on Aggression and statistically different from all other bullying involvement subtypes in this regard. For girls, bully-victims were again found to be lowest of all bullying involvement types on the Affiliative factor, whereas victims were again the highest of all bullying involvement types on Internalizing. However, differing somewhat from what was found to be the case for boys, girl victims were the lowest of all bullying involvement types on the Olympian factor.

Bullying Involvement and Interpersonal Competence Configurations

Tables 5 and 6 present the results from the multinomial logistic regression models that regressed boys' and girls' interpersonal competence configuration classifications on their bullying involvement classifications, where the “model” interpersonal competence configuration (ICC) type was used as the reference category. From Table 5 it can be seen that boy bullies were approximately 4.5 (i.e., $e^{\beta} = e^{1.49} = 4.45$) and 9.5 times more likely than not involved boys to be classified as tough and aggressive (vs. model), respectively. The data provide no evidence to suggest that boy bullies were more or less likely than not involved boys to be classified as unengaged, studious, or multirisk versus model. Boy victims were roughly 6.2, 4.6, and more than 10 times more likely than not involved boys to be classified as unengaged, aggressive, and

Table 3. Bullying Involvement of Boys and Interpersonal Competence Factors (Ordinary Least Squares Regression Coefficients)

Variable or model parameter	Aggression		Popularity		Academic	
	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	1.859	0.114***	0.011	0.156	-0.387	0.162*
Victim	0.270	0.175	-1.216	0.198***	-0.875	0.229***
Bully-victim	1.989	0.148***	-1.286	0.138***	-0.693	0.256**
Intercept	2.657	0.111***	5.019	0.113***	4.671	0.148***
Variable or model parameter	Affiliative		Internalizing		Olympian	
	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	-0.523	0.126***	-0.291	0.135*	0.173	0.147
Victim	-0.300	0.135*	0.835	0.139***	-0.835	0.174***
Bully-victim	-0.926	0.150***	0.369	0.136**	-0.715	0.117***
Intercept	5.568	0.076***	3.067	0.097***	4.870	0.087***

N = 624 boys. R/C = reference category. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard errors are adjusted for nonindependence of observations in the sample.

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

Table 4. Bullying Involvement of Girls and Interpersonal Competence Factors (Ordinary Least Squares Regression Coefficients)

Variable or model parameter	Aggression		Popularity		Academic	
	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	1.303	0.197***	-0.191	0.126	-0.524	0.157**
Victim	0.376	0.184*	-1.093	0.169***	-1.062	0.193***
Bully-victim	2.215	0.181***	-1.143	0.257***	-1.319	0.256***
Intercept	2.020	0.112***	5.089	0.088***	5.201	0.083***
Variable or model parameter	Affiliative		Internalizing		Olympian	
	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	-0.349	0.116**	-0.214	0.094*	-0.198	0.100*
Victim	-0.350	0.105**	0.691	0.151***	-0.844	0.127***
Bully-victim	-0.758	0.177***	0.334	0.219	-0.750	0.185***
Intercept	5.706	0.089***	3.262	0.084***	4.755	0.067***

N = 716 girls. R/C = reference category. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard errors are adjusted for nonindependence of observations in the sample.

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

multirisk (respectively) than as model students. Boy victims were also 3.0 times more likely to be classified as studious than as model boys. Boy bully-victims were more likely than not involved boys to be classified as unengaged, tough, aggressive, or multirisk than model students. Nested likelihood ratio tests of parameter restrictions indicated that boy victims and bully-victims were the most likely of all

bullying types to be classified as unengaged versus model, whereas boy victims were the most likely of all types to be classified as studious versus model. These tests also indicated that bullies and bully-victims were the most likely of all boys to be classified as tough (vs. model), whereas bully-victims and victims were the most likely of all boys to be classified as multirisk (vs. model). Bully-victims were the

Table 5. Bullying Involvement of Boys and Interpersonal Competence Configurations (Multinomial Logistic Regression Coefficients)

	Unengaged vs. model		Studious vs. model		Tough vs. model	
Variable or model parameter	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	-0.343	0.566	-0.441	0.421	1.492	0.282***
Victim	1.828	0.504***	1.108	0.449*	0.340	0.513
Bully-victim	2.460	0.539***	0.840	0.610	1.786	0.586**
Intercept	-0.756	0.207***	-0.147	0.190	-0.340	0.167*
	Aggressive vs. model		Multirisk vs. model			
Variable or model parameter	B	SE	B	SE		
Main effects						
Not involved	R/C	R/C	R/C	R/C		
Bully	2.255	0.384***	0.452	0.612		
Victim	1.519	0.650*	2.675	0.547***		
Bully-victim	3.592	0.654***	3.748	0.556***		
Intercept	-1.194	0.330***	-2.244	0.337***		

N = 623 boys. R/C = reference category. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard errors are adjusted for nonindependence of observations in the sample.

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

most likely of all bullying involvement types to be classified as aggressive versus model.

From Table 6 it can be seen that girl bullies were 3.5 times more likely than not involved girls to be classified as aggressive versus model girls, whereas the data provide insufficient evidence to allow us to conclude that girl bullies differed from not involved girls for any of the remaining dependent variable contrasts. Girl victims were approximately 5.5, 3.5, 7.3, and 13.1 times more likely than not involved girls to be classified as aggressive, studious, affiliative-internalizer, or multirisk than model (respectively). Finally, girl bully-victims were much more likely than not involved girls to be classified as aggressive, affiliative-internalizer, or multirisk versus model. Likelihood ratio tests of parameter restrictions indicated that for the girl subsample, victims and bully-victims were the most likely of all bullying involvement types to be classified as aggressive versus model and multirisk versus model, whereas victims were the most likely of all bullying involvement types to be classified as studious or affiliative-internalizers versus model.

Bullying Involvement and Positive or Negative Behavioral Profile

The regression of students' number of positive, negative, and net positive behaviors (derived from the ICS-T factors presented in Tables 3 and 4) on their bullying involvement status provides another perspective on the relationship between bullying involvement and student

behavioral profiles. Our results for boys indicated that boy bullies, victims, and bully-victims on average all displayed fewer positive behaviors and more negative behaviors than not involved students. Boy bullies, victims, and bully-victims also had fewer net positive behaviors than not involved boys. Likelihood ratio tests indicated that bully-victims overall had the fewest positive and net positive behaviors of all bullying involvement types, whereas bully-victims and victims had the greatest number of negative behaviors.

The findings for girls were very much in accord with the results for boys. Girl bullies, victims, and bully-victims all had fewer positive and net positive behaviors than not involved girls; they all also had more negative behaviors than not involved girls. Likelihood ratio tests indicated that bully-victims again had the overall least number of positive behaviors of all bullying involvement types, whereas bully-victims and victims had the greatest number of negative and net positive behaviors.

Bullying Involvement and School Belonging and School Valuing

The results obtained from regressing the gender-standardized student school belonging and school valuing measures on student bullying involvement and the gender-standardized ICS-T scores appear in Tables 7 and 8. From Table 7 it can be seen that boy bullies, victims, and bully-victims did not differ from not involved boys with respect to school belonging, although boys higher on the Olympian measure did report higher levels of school belonging. The data provide evidence

Table 6. Bullying Involvement of Girls and Interpersonal Competence Configurations (Multinomial Logistic Regression Coefficients)

	Affiliative internalizing vs. model		Studious vs. model		Aggressive vs. model	
Variable or model parameter	B	SE	B	SE	B	SE
Main effects						
Not involved	R/C	R/C	R/C	R/C	R/C	R/C
Bully	0.016	0.294	−0.169	0.319	1.256	0.261***
Victim	1.991	0.408***	1.259	0.386**	1.703	0.371***
Bully–victim	1.344	0.579*	0.069	0.615	2.527	0.357***
Intercept	−0.988	0.185***	−0.223	0.173	−1.106	0.239***
Multirisk vs. model						
Variable or model parameter	B	SE				
Main effects						
Not involved	R/C	R/C				
Bully	0.604	0.338				
Victim	2.579	0.464***				
Bully–victim	2.402	0.590***				
Intercept	−1.576	0.228***				

N = 716 girls. R/C = reference category. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard are errors adjusted for nonindependence of observations in the sample.

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

Table 7. Bullying Involvement of Boys and School Belonging and School Valuing (Ordinary Least Squares Regression Coefficients)

Variable or model parameter	School belonging		School valuing	
	B	SE	B	SE
Main effects				
Not involved	R/C	R/C	R/C	R/C
Bully	-0.151	0.104	-0.288	0.130*
Victim	-0.068	0.094	-0.228	0.114*
Bully-victim	0.035	0.126	-0.001	0.148
Aggressive	-0.087	0.047	-0.047	0.035*
Academic	-0.001	0.046	0.152	0.048**
Affiliative	0.034	0.043	0.156	0.067*
Popular	0.050	0.065	-0.065	0.056
Olympian	0.160	0.066***	0.043	0.054
Internalizing	-0.046	0.050	0.043	0.056
Intercept	-0.492	0.678	-1.292	0.730

N = 563 boys. R/C = reference category. Dependent variables and predictor variables are all standardized by gender. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard errors are adjusted for nonindependence of observations in the sample.

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

Table 8. Bullying Involvement of Girls and School Belonging and School Valuing (Ordinary Least Squares Regression Coefficients)

Variable or model parameter	School belonging		School valuing	
	B	SE	B	SE
Main effects				
Not involved	R/C	R/C	R/C	R/C
Bully	-0.001	0.141	-0.081	0.123
Victim	-0.277	0.138*	0.087	0.087
Bully-victim	-0.148	0.172	-0.221	0.195
Aggressive	-0.064	0.042	-0.009	0.053
Academic	0.014	0.045	0.175	0.049**
Affiliative	-0.026	0.054	0.084	0.060
Popular	0.048	0.042	-0.018	0.046
Olympian	0.109	0.056	-0.024	0.060
Internalizing	-0.063	0.061	-0.039	0.053
Intercept	-0.029	0.689	-0.836	0.736

N = 676 girls. R/C = reference category. Dependent variables and predictor variables are all standardized by gender. Coefficients in bold were found to not be statistically different from one another (via likelihood ratio tests of parameter restrictions). Standard errors are adjusted for nonindependence of observations in the sample.

p* < .05. *p* < .01.

suggesting that bullies and victims had lower levels of school valuing than not involved boys (and were not statistically significant from one another), whereas boys higher on aggression were lower on school valuing and boys higher on academics and affiliation were higher on school valuing. If

the ICS-T factor scores are excluded from these models, boy bullies, victims, and bully-victims were all lower on school belonging than not involved boys (*p* < .05 for each contrast), whereas nested likelihood ratio tests indicate that boy victims and bully-victims had the lowest levels of school belonging

($p > .05$). Furthermore, if the ICS-T factor scores were removed from the model, boy bullies and victims were lower on school valuing than not involved boys ($p < .001$ for both contrasts), whereas likelihood ratio tests indicate that the effects for bullies and victims were not statistically different from one another ($p > .05$).

For girls (Table 8) the data provide insufficient evidence to allow us to conclude that any of the bullying involvement types differed from not involved girls with respect to school valuing, although for school belonging victims differed from not involved girls and are the lowest on school valuing of all bullying involvement types. As was found to be the case for boys, more academic girls reported higher levels of school valuing. If the ICS-T factor scores are dropped from the corresponding regression models, girl victims and bully victims emerge as lower on the school belonging than not involved girls ($p < .001$ for both coefficients) and are not statistically different from each other in this regard ($p > .05$). The data also provide evidence suggesting that bully-victims are lower than not involved girls with respect to school valuing ($p < .05$).

Does Receiving Special Education Services Moderate the Effects of Bullying Involvement?

Before reevaluating the relationships described above using special education status as a covariate, we examined the association between receiving special education services and bullying involvement. The results for boys indicated that boys who received special education services were approximately 2.4 and 3.2 times more likely than nondisabled boys to be victims and bully-victims versus not involved, respectively. The same basic relationships were found for girls, although the effects associated with receiving special education services were stronger. Girls who received special education services were roughly 3.9 and 4.8 times more likely to be victims or bully-victims versus not involved (respectively) than nondisabled girls.

In light of the strong association between receiving special education services and bullying involvement, the GLMs corresponding to Tables 3 to 8 were reestimated to evaluate whether or not the effects of bullying involvement were robust after controlling for special education status. Interaction effects between bullying involvement and receiving special education were also examined to evaluate whether the associations between bullying involvement and behavioral outcomes were qualitatively different for special education and nondisabled students.

Overall, the relationships between bullying involvement and behavioral outcomes remained highly robust after special education status was included in the GLMs. Put differently, the effects noted above for bullying involvement cannot be explained by receiving special education

services. Furthermore, there were few differences in the characteristics associated with bullying involvement between nondisabled and special education students.

For boys, the relationship between bullying involvement and ICS-T factors did not vary by special education status, except for the Affiliative and Internalizing factors (likelihood ratio test $p < .05$ for both). Here the data suggested that boy bully-victims who received special education services were less affiliative than nondisabled bully-victims, whereas boy victims who received special education were less internalizing than victims who were not disabled. For girls, the relationship between bullying involvement and ICS-T measures likewise did not vary by special education status, with the exception of the Popularity factor (likelihood ratio test $p < .05$). Specifically, girl bullies who received special education services were higher on popularity than nondisabled girl bullies.

In reevaluating the relationship between bullying involvement and interpersonal competence, we found no evidence to suggest that the association between girls' interpersonal competence configuration and bullying involvement was moderated by whether students received special education. For boys, bully-victims who received special education were less likely to be classified as tough (vs. model) than nondisabled bully-victims (likelihood ratio test $p < .05$). Receiving special education services did not moderate the effects of the number of positive, negative, or net positive behaviors of girls. For boys, however, bully-victims who received special education services had fewer negative behaviors than nondisabled bully-victims (likelihood ratio test $p < .05$). At the same time, boy victims who received special education services were on average characterized by a greater number of net positive behaviors than nondisabled boy victims (likelihood ratio test $p < .05$).

Finally, for boys, the likelihood ratio fitting procedure failed to provide evidence of moderating effects for bullying involvement and special education services for either school belonging or school valuing when ICS-T measures were included in the model. However, when ICS-T variables were not included, model fitting revealed that boy victims who received special education services were higher on school belonging than nondisabled boy victims (likelihood ratio test $p < .05$). For girls, receiving special education services was associated with lower levels of school valuing, net of bullying involvement and ICS-T factors. When the ICS-T factors were used as covariates alongside the bullying involvement measure, nested likelihood ratio tests suggested that girl bully-victims who received special education services were lower on school valuing than nondisabled girl bully-victims (likelihood ratio test $p < .01$). When the ICS-T factors were excluded from the model, girl bully-victims who received special education

services were lower on school valuing than nondisabled girl bully-victims (likelihood ratio test $p < .05$).

Discussion

The current results build on and extend previous findings on the relationship between school adjustment and involvement in bullying and have important implications for research and intervention pertaining to emotional and behavioral problems in school age youth. First, as others have found (e.g., Gumpel, 2008; Swearer et al., 2004; You et al., 2008), students who are involved in bullying are also more likely to have internalizing and/or externalizing behavior problems and to have negative perceptions of school. Second, and also consistent with other studies (e.g., Estell et al., 2007; Hanish & Guerra, 2004; O'Brennan, Bradshaw, & Sawyer, 2009; Schwartz, 2000), there is considerable variability in the school adjustment of students who are characterized by distinct subtypes of bullying involvement. Third, students who receive special education services have elevated rates of being identified as bully-victims and victims and also appear to be at increased risk for emotional and behavioral problems that may be associated with their involvement in bullying. Collectively, and as Gumpel (2008) has argued, these three points come together to suggest that bullying involvement should be a major area of emphasis for researchers and practitioners who work with youth who have emotional and behavioral difficulties in the school setting.

Generally speaking, compared to their noninvolved peers, students who are involved in bullying are more likely to view school as a place where they experience social difficulties and where they are expected to engage in activities that are of little value to them. Within this context, they are also more likely to have behavioral difficulties. However, the type of behavior problems and corresponding negative perceptions of school vary in relation to their bullying involvement status. For example, as the current study shows, bullies tend to have more positive interpersonal characteristics and fewer negative ones than youth who are identified as victims or bully-victims. They are also less likely to be identified as having multirisk profiles that have been shown to be associated with long-term school adjustment problems including low academic achievement, school failure, and school drop-out (e.g., Cairns & Cairns, 1994; Estell et al., 2007; Roeser & Peck, 2003). Furthermore, as compared to bully-victims and victims, other research has shown that bullies are unlikely to have high rates of internalizing problems and are more likely to have socially valued characteristics (e.g., Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004; O'Brennan et al., 2009; Toblin et al., 2005). In fact, some bullies are viewed as being socially prominent leaders, and in many cases they tend to affiliate with other children who are viewed by teachers and peers as being popular (Dijkstra, Lindenberg,

& Veenstra, 2009; Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Farmer, Petrin, Robertson, et al., 2010; Witvliet et al., 2010). In contrast, victims are more likely to be socially isolated and to have smaller social networks (Salmivalli, Huttenen, & Lagerspetz, 1997; Veenstra et al., 2005), and bully-victims tend to have the fewest positive interpersonal characteristics and are most likely to associate with unpopular peers, have the lowest rates of social acceptance, and use ineffectual aggression that is emotionally charged (Farmer, Petrin, Robertson, et al., 2010; Hanish & Guerra, 2004; Schwartz, 2000).

Overall, the findings suggest that the relationship between bullying involvement and school adjustment is similar for nondisabled youth and students who receive special education services. However, special education students have elevated levels of being identified as a victim or as a bully-victim but not as a bully. This corresponds with a social interactional view of aggressive behavior in the classroom (see Farmer, 2000) and with the view that special education students tend to have social skill difficulties (Gresham & MacMillan, 1998). As described in an ethnographic account of the victimization of socially marginalized students in middle school (Evans & Eder, 1993), it is possible that special education students are viewed as easy targets for victimization as youth attempt to protect or promote their own status in the classroom social structure. This is consistent with studies that show that bullies tend to select targets who have a status imbalance with their own social position and that bullies and victims may engage each other in dyadic interactions over time that support and sustain their problematic behavior (Pellegrini & Long, 2002; Rodkin, Pearl, Farmer, & Van Acker, 2003; Veenstra, Lindenberg, & Munniksma, 2010). Thus, some special education students may retreat from the taunting and teasing of peers and be at increased risk for being victims who have little support from peers. Other special education students may respond to being bullied by striking back with ineffectual attempts to attack or challenge the social status of the bully. In either case, the behavioral responses of such youth may actually elicit more taunting and bullying from peers and result in patterns of social interaction that sustain and consolidate their negative social roles.

Implications for Intervention

When considered in light of previous research, the current findings suggest that the development of interventions to address children's and adolescents' emotional and behavioral problems should take into consideration their bullying involvement status and corresponding peer relation problems that may support their involvement in bullying (also see Espelage & Swearer, 2003; Farmer, Farmer, et al., 2007; Gumpel, 2008; Rodkin & Hodges, 2003; Swearer & Doll,

2001). On this score, when developing classroom management programs or conducting functional behavioral assessments to identify factors that maintain students' problem behavior, interventionists should include a focus on the classroom social dynamics that support bullying involvement and associated patterns of antisocial behavior (Ahn et al., 2010; Farmer, Farmer, et al., 2007). Doing so includes clarifying the social roles, peer affiliations, and social interaction patterns of youth who are frequently engaged in bullying both as the aggressor and the victim (Farmer, 2000; Farmer, Petrin, Robertson, et al., 2010).

Furthermore, the current findings are consistent with the view that social skills training may be a necessary but insufficient intervention for many special education students (also see Gresham, Sugai, & Horner, 2001; Maag, 2006). Many youth who receive special education services tend to be socially marginalized and to develop peer affiliations with classmates who are unpopular and who have elevated levels of aggression (Estell et al., 2009; Farmer et al., 1999). This suggests that students who receive special education services are likely to be in a social interactional context that increases the possibility they will be the victim of bullying. In turn, they may respond back in antisocial ways that maintain their negative reputations and peer interactions (see Hymel et al., 1990). Accordingly, there is a need to develop classroom management strategies and individual-level interventions that correspond with the peer group dynamics that contribute to problematic social roles and interaction patterns.

Reflecting developmental science and social interactional perspectives, the current study suggests there is a need to address the interplay between students' academic, behavioral, and social problems. On this front, a comprehensive universal intervention model has been developed to promote early adolescents' school adaptation. The supporting early adolescent learning and social success (SEALS) model has been established to integrate academic engagement, behavior management, and social dynamics management interventions (Farmer, Hamm, Petrin, Robertson, et al., 2010). In the SEALS social dynamics management component, teachers learn to identify distinct peer groups, hierarchical social structures, and students' social roles (e.g., followers, leaders, bullies, victims) in the peer system. An emphasis is placed on understanding and preventing the social dynamics of bullying and social aggression (see Farmer, 2000; Farmer & Cadwallader, 2000). Teachers are taught how to use this information in their daily instructional and behavior management activities including grouping practices, peer tutoring strategies, and strategies to use peers to model and reinforce appropriate and desired classroom behavior (see Farmer, Goforth, et al., 2006; Sutherland & Farmer, 2009).

Randomized control trials (RCTs) and cluster randomized trials (CRTs) indicate that SEALS intervention program has a positive impact on teachers' capacity to manage

the classroom social ecology, students' experiences in the classroom context, and their academic achievement. In one RCT study, teachers in intervention versus control schools, had greater awareness of peer group composition including the peer affiliations of students identified as bullies (Farmer, Hall, et al., 2010). In another RCT, teachers' greater awareness of peer group affiliations in general was associated with more positive student experiences of the school social-affective context (Hamm, Farmer, Dadisman, et al., in press), suggesting that teachers' awareness of social dynamics promotes students' social experiences. Furthermore, in this same study, teachers in intervention schools were rated by trained observers blind to the intervention condition as being better managers of classroom dynamics as compared to ratings for control school teachers. In a third RCT, there was a differential impact on teachers' efficacy to meet students' academic and behavioral needs in intervention as compared to control school teachers (Farmer, Hamm, Petrin, Robertson, et al., 2010). After controlling for background characteristics, teachers in intervention schools maintained a positive sense of their efficacy to meet students' needs from fall to spring whereas control teachers had a decline in efficacy. Results from a CRT study with 28 schools and approximately 2,000 sixth graders support the RCT findings (Hamm, Farmer, Dadisman, et al., 2010). Classroom observation data of implementation indicated that teachers in intervention as compared to control schools were more likely to use classroom practices aligned with the SEALS model and to create a more supportive learning environment for students.

Corresponding studies have demonstrated an impact of the SEALS model on students' experiences of the peer context. Findings from an RCT in the Northern Plains indicated that students, especially Native Americans, in intervention versus control schools reported improved peer norms for academic effort and achievement among their peers (Hamm, Farmer, Robertson, et al., 2010). Students also perceived less encouragement of and greater peer protection against bullying in intervention versus control schools. Finally, Native American students in particular perceived the school climate to be less emotionally risky for academic participation. In a similar RCT in Appalachian schools, students' perceptions of peer norms for effort and achievement remained supportive across the sixth grade middle school transition year and into the fall of seventh grade for all students in intervention schools (Farmer, Hamm, Petrin, Robertson, et al., 2010). In contrast, for students in control schools, the peer norms trajectory declined across the transition year and into the seventh grade year. Also, students who were identified as having elevated levels of aggression prior to the intervention were more likely to affiliate with academically productive peers and less likely to associate with bullies or victims in intervention as compared to control schools following intervention. Analyses with the CRT sample indicated that minority students (African American,

Latino, and Native American) in intervention schools evidenced greater valuing of school, perceived their schools as significantly less emotionally risky for academic participation, and perceived peer norms that were significantly more supportive of effort and achievement (Hamm, Farmer, Dadisman, et al., 2010). In other analyses with the CRT sample, teacher ratings of students' involvement in bullying or social aggression were examined, and the results indicated that the intervention was associated with a decrease in teacher reports of bullying and students' manipulation of peers (Farmer, Petrin, & Hamm, 2010). Across these studies, students also showed academic gains both in terms of teacher ratings of students' academic behaviors and their performance on standardized achievement tests.

Although the findings of the research on the SEALS model suggest that productive peer contexts can be promoted with a universal approach, the findings from the current study suggest that some youth are likely to have correlated risks and bullying involvement social roles that support their problem behavior. Ongoing research suggests that many youth with the risks configurations and bullying involvement roles identified in this study are not responsive to universal strategies and will require selected and indicated interventions that address the social functions of their problem behavior. Thus, the current findings can help guide the development of new individualized interventions that address the social functions of problem behavior and bullying involvement. Building from a social interactional framework and from research on classroom social structures and peer group dynamics, the social function of problem behavior can be understood at four distinct but complimentary levels: social interchanges, social network membership and social structures, social roles and reputations, and inclusionary and exclusionary peer group processes (Farmer, 2000). There is a need to extend this general program of research by focusing on the development of selected and indicated strategies that address these different levels of the social functions of problem behavior in relation to interpersonal competence risk configurations and bullying involvement subtypes for youth with and without disabilities.

Limitations and Future Research Needs

The current study has three limitations that must be acknowledged. First, this study was conducted only with fifth graders in rural school settings. Therefore, although the findings yield new perspectives that may help to clarify linkages between bullying involvement and emotional and behavioral problems, they may not generalize to younger or older students or to students in metropolitan areas. However, the consistency of these findings with other studies from a variety of settings and ages enhances the possibility that these results can be generalized to a broad range of students and settings.

Second, this study included a focus on students who received special education services and did not disaggregate students by disability status. Although the current sample was adequate in size for examining the bullying involvement of students who receive special education services, it was not adequate or appropriate for clarifying differences in bullying involvement in relation to type of disability. For the current investigation, disability classification was not a research focus because it was not possible to determine comparability of classifications across participating schools and districts. Nonetheless, there is a need for future work that clarifies differential linkages between distinct special education classifications and bullying involvement status. Third, the current study focused on a single time point. As with all social development research, there is a need for longitudinal studies that examine stability and change in bullying involvement over time. This may be particularly important for understanding bullying involvement and school adaption of special education students who may be at increased risk for both bullying and school adjustment problems. Therefore, although the current study yields new perspectives and generates new insights into the bullying involvement of special education students and linkages between bullying status and emotional and behavioral problems, much more work is needed across a range of samples and that includes a longitudinal focus.

Conclusions

The findings of this study highlight the linkages between bullying involvement and emotional and behavioral problems. Furthermore, youth who receive special education services are more likely to be identified as victims or bully-victims. It is likely that the social difficulties experienced by special education students reflect the broader peer dynamics that contribute to bullying involvement. As researchers work to address emotional and behavioral problems in youth, there is a need to focus on how bullying involvement and special education status are related to such difficulties. Furthermore, there is a need to clarify how the classroom social context and the peer group dynamics contribute to such problems. Information along these lines may contribute to the development of functional behavioral assessments that clarify how students' own behaviors elicit and are maintained by synchronized patterns of interactions with other peers in the classroom that reflect processes of bullying and victimization. Such work should promote more effective interventions for addressing the social difficulties and behavior problems of special education students and youth who are at risk for developing serious EBD.

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