

Gender Differences in the Assessment, Stability, and Correlates to Bullying Roles in Middle School Children

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The current study investigated bullying behaviors in 284 school children in the fourth through seventh grades at the time of the initial assessment. Peer ratings of bullying behavior were obtained at the end of the spring semester of one school year and at the end of the fall semester of the next school year. Importantly, peer ratings were obtained by assessing not only the level at which participants actually bully other students but also whether participants help bullies to hurt the victim (assister), encourage bullies (reinforce), or help the victim of bullying (defender). Our results did not support the utility of differentiating between bullies, assisters, or reinforcers. Specifically, these bullying roles were highly intercorrelated, both concurrently and across school years, and they showed similar correlations with aggression and several characteristics often associated with aggression (i.e., conduct problems, callous-unemotional traits, and positive expectancies about aggression). In contrast, ratings of defending designated a particularly prosocial group of students. Finally, whereas bullying appeared to be very similar in boys and girls, it was somewhat more stable across school years and was related to lower levels of prosocial behavior in boys, both of which could suggest that bullying may be somewhat more related to social group dynamics in girls. Copyright © 2011 John Wiley & Sons, Ltd.

One form of aggressive behavior that has been the focus of a great deal of recent research is bullying. Bullying is defined as repeated aggression towards another person who is perceived as weaker and less able to defend himself or herself from the aggressor (Olweus, 1991). There are several reasons for this research focus. First, research suggests that bullying is a problem that many children and adolescents face in schools. For example, Nansel, Overpeck and Pilla (2001) surveyed a group of 15,686 students in grades six through 10 and found that 10.6% reported bullying others sometimes, 8.8% reported bullying others frequently, 13% reported that they were victims of bullying, and 10% reported both bullying and being a victim of bullying. Thus, about 29% of individuals reported being a part of bullying, either as a bully or victim (Nansel et al., 2001). Second, research has now consistently shown that bullying results in

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serious negative academic and mental health consequences to its victims, such as decreasing school attendance and increasing the risk for emotional problems (Olweus, 1994; Smith & Brain, 2000; Smith, Talamelli, Cowie, Naylor & Chauhan, 2004; Sourander *et al.*, 2007; Storch, Masia-Warner, Crisp & Stein, 2005).

There is evidence that, like aggression more broadly, bullying behaviors are embedded within a larger group process (Salmivalli, Lagerspetz, Bjorkqvist, Osterman & Kaukiainen, 1996). Specifically, research has shown that, in addition to the person who actually performs the bullying behavior, other classmates can play roles when witnessing bullying of another student (Gini, 2006; Gini, Albiero, Benelli & Altoe, 2007; Salmivalli *et al.*, 1996). Salmivalli and colleagues (1996) used peer nominations to identify several participant roles that peers may play in situations involving bullying. Specifically, reinforcers are individuals who provide encouragement to the bully by laughing and encouraging people to watch while the peer is being victimized. Assistants are active participants in the bullying behaviors and will catch and hold the victim. Defenders are those individuals who make an effort to stop the bullying behavior by taking up for the victim.

These different bystander roles have been identified in a number of different school-based samples (Menesini, Melan & Pignatti, 2000; Monks, Smith & Swettenham, 2003; Sutton & Smith, 1999). More importantly, the behavior of the bystander has been shown to be related to the rate and intensity of bullying behavior (Hawkins, Pepler & Craig, 2001; O'Connell & Pepler, 1999). For example, in a sample of 6,764 children in grades three through five, Salmivalli, Voeten and Poskiparta (*in press*) reported that the level of defending of the victim of bullying was negatively associated with the level of bullying in the classroom, whereas the level of reinforcing was positively associated with level of bullying. Based on this research, several interventions to reduce bullying in schools have focused on trying to change the behavior of bystanders (Frey, Hirschstein, Edstrom & Snell, 2010; Kärnä, Voeten, Poskiparta & Salmivalli, 2010; Olweus, 1991). These interventions often assume that it will be easier to change the behavior of the bystander than to change the behavior of the bully.

Unfortunately, there are several limitations in the existing research on these bystander roles that could be important for understanding and reducing bullying in schools. First, there have been a number of studies showing that bullying and the various bullying roles can be assessed by either self-report or peer report and these two methods are moderately correlated (Goossens, Olthof & Dekker, 2006; Menesini *et al.*, 2000; Salmivalli *et al.*, 1996; Sutton & Smith 1999). However, whereas the defender role consistently forms a separate and important dimension, the bullying, reinforcing, and assisting dimensions have typically been highly correlated and they have formed separate factors in some studies (Menesini *et al.*, 2000; Salmivalli *et al.*, 1996) but not others (Goossens *et al.*, 2006; Sutton & Smith, 1999). Thus, it is important to further examine the factorial validity of distinguishing among the various bullying roles.

Second, there is some research to suggest that bullying is fairly stable in childhood and adolescence (Goossens *et al.*, 2006; Salmivalli, Lappalainen & Lagerspetz, 1998). However, much less research has focused on the stability of the various participant roles. In a sample of 189 Finnish eight graders, Salmivalli and colleagues (1998) found evidence that the participant roles remained fairly stable over two years. However, children who changed into a completely new classroom showed less stability than those

who remained with the same classmates. Thus, understanding the stability of these roles, especially across school years, and testing potential moderators of this stability will be important to provide important data on whether bullying and the various bullying roles are more a characteristic of the child, which will be present across different classroom settings, or more a characteristic of the setting.

Third, research needs to further investigate the characteristics of students who bully and those involved in the different bullying roles. This could be important for several reasons. For example, such research could indicate whether or not bullying and the various bullying roles are related to individual differences in the child. Further, if the various bullying roles are related to different characteristics, it could support the validity for distinguishing among the various bullying roles. There has been a significant amount of research suggesting that bullies tend to show high rates of aggression, as well as typical correlates to aggression such as conduct problems, callous-unemotional (CU) traits, and expectations of positive outcome for their aggression (Camodeca & Goossens, 2005; Kumpulainen, Räsänen & Puura, 2001; Pellegrini, 1998; Perren & Alsaker, 2006; Schwartz & Proctor, 2000; Sijtsema, Veenstra, Lindenberg & Salmivalli, 2009; Unever, 2005; Viding, Simmonds, Petrides & Frederickson, 2009). In contrast, defenders have been found to show higher rates of prosocial behaviors, such as higher levels of empathy, emotional regulation, cooperation, and altruism (Andreou & Metallidou, 2004; Camodeca & Goossens, 2005; Gini, 2006; Gini et al., 2007; Nickerson, Mele & Princiotta, 2008; Tani, Greenman, Schneider and Fregoso, 2003; Warden & Mackinnon, 2003). However, what is not clear is whether those who assist or reinforce bullying show similar characteristics to those who commit the actual bullying (Sutton & Smith, 1999).

Fourth, there is evidence that both boys and girls can be involved in bullying (Nansel et al., 2001), and this is clearer when both physical and indirect forms of bullying are considered (see Griffin & Gross, 2004 for review). Beyond these descriptive gender differences in bullying behaviors, however, little research has examined potential gender differences in bullying behaviors. One potentially important finding is that bullying tends to be more stable in boys than in girls, which could suggest that girls may be more influenced into participating in bullying behavior by social norms that may change over time, whereas boys' individual personality characteristics may be more influential in determining whether or not they participate in bullying behaviors (Salmivalli & Voeten, 2004). Also, girls are more likely to be defenders, whereas boys are more likely to be assistants, reinforcers, and bullies (Salmivalli et al., 1996, 1998). However, little research has focused on whether the correlates to the bullying roles differ for boys and girls.

As with aggressive behavior more globally (Crick & Grotpeter, 1995), it is possible that bullying in girls may be more strongly related to relational aggression than to physical aggression. Relational aggression has been defined as aggressive behavior that is used to hurt or harm another's social relationships (Crick & Grotpeter, 1995). In the few studies on gender differences in bullying behavior, boys report being bullied more by being hit or slapped or pushed, whereas girls report being bullied through rumors or sexual comments (Nansel et al., 2001; Olweus, 1993). However, these studies did not directly test the associations between bullying behaviors and types of aggression and whether this may differ for boys and girls.

CURRENT STUDY

Based on this past research, the overall goal of the current study was to test the stability and validity of the various bullying roles that have been identified in past research and that have proven to be related to the level of bullying that takes place at school. Most importantly, the current study tested peer ratings of the various bullying roles in students in the fourth through seventh grades to see if there was evidence to support the distinction between those who bully and those who reinforce, assist, or defend the bully. In all of these tests, the findings for boys and girls were compared to determine if there were gender differences in the expression of bullying behaviors.

Several specific hypotheses were tested. First, the current study tested whether there was factor-analytic support for distinguishing among the various bullying roles and whether the factor structure was invariant across gender. Based on past research, it was possible that either a four-factor model (i.e., with separate scales for bullying, assisting, reinforcing, and defending) or a two-factor model (i.e., bullying/assistant/reinforcing and defending) would fit the data best. Second, the current study tested the stability of these bullying roles from the spring of one school year to the fall of the next school year. Based on past research, it was predicted that all the roles would be moderately stable across school years but that this would be moderated by the number of classmate raters who were the same across school years and by the gender of the child. Specifically, it was predicted that the number of same raters would lead to increases in stability, and that boys would show greater stability on the bullying roles. Third, the current study tested potentially different correlates to the various bullying roles. Again based on past research, it was predicted that bullying would be positively associated with aggression and characteristics frequently associated with aggressive behavior (i.e., conduct problems, CU traits, positive expectations for aggression). Further, it was predicted that bullying would be negatively associated with prosocial behavior. However, it was also predicted that the association with physical aggression would be stronger for boys, whereas the association with relational aggression would be stronger for girls. In contrast, it was predicted that defending would be negatively associated with aggression and positively associated with prosocial behavior. To advance past research, the current study tested whether assisting and reinforcing would show different associations with aggression and characteristics associated with aggression compared with the actual bullying behavior.

METHODS

Participants

Data were collected during at the end of the spring semester (April and May) and the end of the fall semester (November and December) during the next school year, when the participants were in different classrooms and at different grade levels. For the initial assessment, participants were recruited from the fourth through seventh grades at four schools in a semi-rural public school system in the southeastern U.S. All of the schools were Title I schools, meaning that a substantial proportion of students (at least 66%) received free or reduced lunches due to low family incomes. Boys and girls in special education classes were excluded from the study. During the first wave of data

collection, participants were all between the ages of 9 and 14 years, with a mean age of 11.28 years ($SD=1.82$). Girls made up 54.2% of the sample and nearly half of the sample reported being Caucasian (49.3%) as their ethnicity and 38.4% as African American, 6% as other, 3% as Hispanic-American, and 1% as Asian-American. The gender and ethnic composition of the sample was representative of the participating schools.

Procedures

Institutional review board approval was obtained prior to data collection. For the first wave of data collection, students were contacted for the study via letters with consent forms sent home to parents. Once consent was obtained from parents, the questionnaires were administered to small groups of students during portions of the school day that minimized disruptions to instructional time (e.g., study period, guidance counseling time). To control for differences in reading ability, the questionnaires were read out loud. During the questionnaire administration, participants were spaced far enough apart to make it difficult to determine other participants' responses. Additionally, participants were provided with a cover sheet to hide their responses.

For the initial assessment, parental consent forms were returned for 349 (70%) of approximately 500 eligible students. Of this 349, 53 students did not participate in data collection, either due to absences or other activities on data collection days or due to unwillingness to provide assent. Another 14 students did not complete forms or did not complete forms correctly, leading to the final sample of 284. During the second wave of data, an additional form was sent to parents asking their permission for their child's continued participation in this research study. If the parent returned this permission slip and indicated that their child could no longer be a part of the study, this child was excluded from the study.

At the second assessment, 185 of the original sample were included in the study. Approximately 67 of the original participants were excluded from the study because they had fewer than two participating peers in their classroom to do the ratings of bullying. Thirteen of the original T1 sample withdrew from the study and 19 were absent at the time of data collection. Thus, 65% of the original participants completed the survey in its entirety during the second wave of data collection. Attrition analyses indicated that there were no significant differences between those who participated in only the first assessment and those who participated in both assessments on demographic variables or any study measure. However, due to the reduced sample size at time two, the follow-up data were used only to assess the hypotheses related to the stability of bullying behavior.

Measures

Participant roles scale

A modified version of Sutton and Smith's (1999) Participant Role Scale was used for this study to assess peer reports of bullying behavior. The scale includes Sutton and Smith's (1999) original bully ($n=4$; e.g., "How often does this classmate bully others?"), assistant ($n=2$; e.g., "How often does this student help bullies pick on classmates, maybe

by catching or holding the target?"), and defender ($n=5$; e.g., "How often does this classmate try to make the bullies stop when they see a classmate being bullied?") items. However, two items from the original reinforcer scale were excluded; "Is usually there, even if not doing anything" and "Gets others to watch" because they did not seem to fit the theoretical construct for reinforcing, leaving three remaining reinforcer items (e.g., "How often does this classmate laugh when he or she sees (witnesses) others being bullied").

Prior to the administration of the participant roles scale, the students were read the following definition of bullying which was based on that provided by Olweus (2001): "Bullying is when a student is mean to another student over and over again. The student who is being bullied is usually at a disadvantage, such as being smaller, outnumbered, or having fewer friends. Bullying includes hitting, calling people names, telling stories about people, and ignoring people." After the definition was read, the students were asked to rate each of the classmates who were also participating in the study and were in the student's home room on a scale of 1 (never) to 3 (often) on the bullying questions. To form bullying scores, mean ratings were calculated for each item from all the peer ratings. At the first assessment, the number of peer raters for each child ranged from four to 18 (mean = 12.26; SD = 4.19). As noted previously, any student with less than two classmates participating was not included in analyses. Thus, at the second assessment, the number of peer raters ranged from two to 16 (mean = 7.23, SD = 3.22). The reliability of the scales was adequate at both time points: bully ($\alpha=0.91$ and 0.85), reinforcer ($\alpha=0.93$ and 0.92), assistant ($\alpha=0.94$ and 0.90), and defender ($\alpha=0.91$ and 0.87).

Peer conflict scale

The PCS (Marsee & Frick, 2007) is a 40-item self-report measure developed to assess the various types of aggressive behavior. It includes four 10-item scales. The two reactive subscales, reactive-physical (e.g., "If others make me mad, I hurt them") and reactive-relational (e.g., "If others make me mad, I tell their secrets") have items worded such that the individual was clearly provoked, and the reaction is either to hurt or fight the other person (physical) or to harm their social relationships (relational). In contrast the proactive-physical subscale (e.g., "I carefully plan out how to hurt others") also involves hurting others or fighting, but in a way that is clearly planned or for gain. Similarly, the proactive-relational subscale (e.g., "I deliberately exclude others from my group, even if they haven't done anything to me") involves hurting others socially but again in a way that is clearly not in reaction to a perceived provocation. Each item was scored either 0 (not at all true), 1 (somewhat true), 2 (very true), or 3 (definitely true). In the current sample, the internal consistency of the four aggression scales at the initial assessment was adequate: reactive-relational aggression, $\alpha=0.85$; reactive-overt aggression, $\alpha=0.88$; proactive-relational aggression, $\alpha=0.85$; proactive-overt aggression, $\alpha=0.84$.

The factor structure of the PCS was tested in a large sample of older children and adolescents ($N=855$; age range = 12–18 years) (Marsee *et al.*, in press). Confirmatory factor analysis (CFA) showed that a hierarchical four-factor model fitted the data better than a one-factor model (i.e., general aggression factor), a two-factor model (i.e., physical and relational factors), and a four-uncorrelated-factor model. Also in a detained sample of boys, the reactive and proactive physical aggression scales were positively associated with a self-report of the number of violent acts (Kimonis *et al.*,

2008) and the aggression scales were correlated with a laboratory measure of aggressive behavior, with the reactive and proactive subtypes showing different responses to provocation (e.g., reactive aggression being associated with aggressive responses to low provocation) (Muñoz, Frick, Kimonis & Aucoin, 2008). In a detained sample of girls, the reactive and proactive subscales for both relational and physical aggression showed differential correlations with important external criteria (i.e., reactive being correlated with measures of emotional dysregulation and proactive being correlated with measures of CU traits and positive outcome expectations for aggression) (Marsee & Frick, 2007).

Youth Symptom Inventory-4

To measure conduct problems, 26 items assessing the *Diagnostic and Statistical Manual of Mental Disorders-IV* (DSM-IV) symptoms of oppositional defiant disorder and conduct disorder on the self-report form of the Youth Symptom Inventory-4 (YI-4) (Gadow & Sprafkin, 2000) were used. This scale demonstrated good reliability and validity in 239 clinic-referred youths between the ages of 11 and 18 years (Gadow et al., 2002). Specifically, this scale was able to differentiate children with and without conduct disorders (Gadow et al., 2002). The internal consistency of this scale in our current sample at the initial assessment was $\alpha=0.89$.

Prosocial behavior

To measure prosocial behavior, the four-item prosocial behavior subscale (e.g., “How often do you say supportive (nice) things to classmates?”) of the Children’s Social Behavior Scale (CSBS) (Crick, 1996) was used. Previous research has demonstrated that this scale was negatively correlated with aggressive behavior in a sample of 245, third- through sixth-grade children (Crick & Grotpeter, 1995). In the current sample, the internal consistency was $\alpha=0.90$.

Antisocial Process Screening Device

The Antisocial Process Screening Device (APSD; Frick & Hare, 2001) is a self-report behavior rating scale with each item scored either 0 (not at all true), 1 (sometimes true), or 2 (definitely true). Only the six-item CU subscale (e.g., “I feel guilty or bad when I do something wrong”, which is reversed score) was used in this study. Scores from the self-report version of the APSD have been shown to be relatively stable over three years in a non-referred sample (Muñoz & Frick, 2007) and have been associated with greater aggression and violence (Kruh, Frick & Clement, 2005) and with laboratory measures of deficient affective experiences (Loney, Frick, Clements, Ellis & Kerlin, 2004). The internal consistency of the CU subscale in the current sample was modest ($\alpha=0.59$) but consistent with findings from past samples (Muñoz & Frick, 2007).

Attitudes and Beliefs toward Aggression

The Attitudes and Beliefs toward Aggression (Vernberg, Jacobs & Hershberger, 1999) is a self-report measure that assesses social-cognitive styles that have been related to

aggressive behavior. Two subscales were combined in the current study to form a measure of positive expectations towards aggression: a seven-item “aggression legitimate” scale indicating the belief that it is okay to be aggressive or that the victims deserve it and a four-item “aggression pays” scale indicating the belief that aggression gets you what you want (Vernberg *et al.*, 1999). These subscales have been associated in expected directions with aggressive behaviors, negative affect, and response to intervention (Biggs, Vernberg, Twemlow, Fonagy & Dill, 2008; Dill, Vernberg, Fongay, Twemlow & Gamm, 2008; Vernberg *et al.*, 1999). In this study, the combined aggression legitimate and the aggression pays scales had an internal consistency of $\alpha = 0.78$ at the initial assessment.

RESULTS

Preliminary Analyses

In Table 1, the distribution of all study variables are provided, both in the full sample and for boys and girls separately. At the initial assessment, boys had higher scores on the bullying and reinforcing scales, whereas girls had higher scores on the defender scale. Further, at the initial assessment, boys had higher scores on the conduct problems, CU traits, positive expectations for aggression, and on the two measures of physical aggression (proactive and reactive). In contrast, girls showed higher scores on the measure of prosocial behavior and there were no gender differences in the measures of relational aggression (proactive and reactive). All of these results were in the direction expected from past research.

Confirmatory Factor Analyses of Bullying Roles

The first study goal was to determine if there was factor-analytic support for the peer-ratings of bullying roles at the initial assessment. Specifically, several *a priori* factor models were estimated using Mplus version 5.1 (Muthèn & Muthèn, 2007).¹ A series of CFA models were examined including a one-, two-, three-, and four-factor model ($n=284$). In all models, two items decreased the model fit significantly. Thus, item 1 (“How often does this classmate laugh when he or sees [witnesses] others being bullied?”) on the reinforcer scale and item 11 (“How often does this student get a group of friends to help the target of bullying?”) on the defender scale were deleted from the scales for all other analyses. After deleting these items, the one-factor model specified that all bullying roles loaded on a general bullying factor. This model showed a poor fit to the data. The chi-squared test of model fit was significant [χ^2 (df=26)=306.36, $p=0.00$], the root mean square error of approximation (RMSEA) was >0.10 (RMSEA=0.195), and the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) were <0.9 (CFI=0.783, TLI=0.774).

¹ Standard CFA models rely on general maximum likelihood (ML) estimation, which assumes the observed variables are continuous and normally distributed. These assumptions are not met when the observed variables are not distributed normally. Therefore, MLMV with a mean and variance-adjusted chi-squared test of model fit was used. This estimation procedure accounts for the non-normal distribution of the observed variables.

Table 1. Distribution and gender differences in study variables

| | Initial assessment | | | | Follow-up assessment | | | |
|-----------------------|--------------------|---------------|------------------------|---------------|----------------------|------------------|------------------------|---------------|
| | Boys (n=130) | Girls (n=154) | t (df=282)(η^2) | Total (n=284) | T2 boys (n=81) | T2 girls (n=104) | t (df=183)(η^2) | Total (n=185) |
| Bully | 6.03(1.39) | 5.69(1.40) | 2.04*(0.02) | 5.84(1.40) | 6.02(1.60) | 5.75(1.27) | 1.26(0.01) | 5.87(1.43) |
| Assistant | 2.81(0.67) | 2.72(0.70) | 1.08(0.00) | 2.76(0.69) | 2.97(0.84) | 2.74(0.64) | 2.19*(0.02) | 2.84(0.74) |
| Reinforcer | 3.26(0.88) | 2.98(0.89) | 2.63***(0.02) | 3.11(0.90) | 3.18(0.89) | 2.99(0.78) | 1.53(0.01) | 3.07(0.83) |
| Defender | 7.50(1.51) | 7.92(1.46) | -2.38*(0.03) | 7.73(1.50) | 7.20(1.26) | 7.42(1.36) | 1.14(0.01) | 7.32(1.32) |
| Conduct problems | 43.52(11.34) | 40.19(8.88) | 2.79***(0.02) | 41.72(10.20) | | | | |
| Prosocial behavior | 30.08(8.83) | 32.80(7.26) | -2.86***(0.04) | 31.56(8.11) | | | | |
| CU traits | 2.07(1.78) | 1.64(1.66) | 2.08*(0.02) | 1.84(1.73) | | | | |
| Positive expectations | 30.45(8.15) | 28.56(6.75) | 2.13*(0.02) | 13.68(2.96) | | | | |
| Proactive-relational | 12.68(3.95) | 11.94(3.02) | 1.79(0.01) | 12.28(3.49) | | | | |
| Proactive-physical | 12.31(4.07) | 11.10(2.43) | 3.09***(0.03) | 11.67(3.33) | | | | |
| Reactive-relational | 13.99(4.75) | 13.79(4.16) | 0.39(0.00) | 13.88(4.43) | | | | |
| Reactive-physical | 16.53(5.85) | 14.01(5.17) | 3.85***(0.04) | 15.16(5.63) | | | | |

CU, callous-unemotional.
* $p < 0.05$; ** $p < 0.01$.

Next, a two-factor model was examined in which bullying, assisting, and reinforcing items were specified to load on a single factor and the defender items were specified to load on a separate factor. This model revealed a moderate fit to the data. Although the chi-squared test of model fit was significant [χ^2 (df=26)=122.56, $p=0.00$], the RMSEA was acceptable (RMSEA=0.06) and the CFI and TLI were >0.9 (CFI=0.925, TLI=0.922). A review of the modification indices (MIs) suggested correlating item 4 (“Encourages the bully by shouting and cheering”) and item 7 (“Says things like ‘show him’ or ‘fight, fight’”) (MI value=17.89). Due to the high value of the modification indices and the similarity in these items, we estimated an additional two-factor model accounting for the correlation between the two items. This revised two-factor model, representing bullies and defenders and correlating items 4 and 7 revealed a significantly improved fit from the one-factor model [χ^2 (df=2)=48.10, <0.001], and the original two-factor model [χ^2 (df=1)=29.42, $p<0.001$]. Although the chi-squared test of model fit of this revised model remained significant [$\chi^2=110.74$ (df=26), $p<0.001$], the RMSEA was acceptable (RMSEA=0.06), and the CFI and TLI were >0.9 (CFI=0.934, TLI=0.932). In this final two-factor model, all items loaded positively onto the hypothesized factor and were highly significant. The r^2 values indicated that factor 1 explained 53–87% of the variation in the bullying, reinforcing, and assisting items and factor 2 explained 64–75% of the variation in the “defender” items. Further, the two factors were negatively correlated (-0.90).

When testing three- (i.e., bullying, reinforcing/assisting, and defending) and four-factor models (i.e., bullying, reinforcing, assisting, and defending), the models did not estimate correctly because some of the factors were too highly correlated. In the three-factor model, the correlation between the assistant/reinforcer and bully factors was 1.0. In the four-factor model, the bully and assistant factors showed a correlation of 0.99. Due to the strong associations among these factors, these results do not support separating the bully, assistant, and reinforcer factors into separate factors and, instead, support the fit of the two factor model to the data.

Next, the invariance in the two-factor model was tested across gender in several ways. First, separate CFAs for boys and girls were performed to assess whether the two-factor model fitted the data for each group separately. The fit of the model was similar across groups. For the girls ($n=154$), the chi-squared test of model fit was significant [χ^2 (17)=46.932, $p=0.00$], CFI and TLI were >0.90 (CFI=0.922, TLI=0.927), and the RMSEA was somewhat high (0.06). For the boys ($n=130$), the chi-squared test of model fit was significant [χ^2 (25)=73.123, $p=0.00$], CFI and TLI were >0.90 (CFI=0.938, TLI=0.926), and the RMSEA was somewhat high (0.06). In both groups, the factor loadings were positive and significant ($p<0.001$) and the association among the two factors was negative (boys, $b_{\text{stdYX}}=-0.638$; girls, $b_{\text{stdYX}}=-0.634$) and significant ($p<0.001$). Second, an unconstrained (i.e., free) model was examined in which the factor loadings and intercepts were free to vary across the groups. Results of this model indicated a modest fit of the model to the data. The chi-squared test of model fit was significant [χ^2 (42)=122.85, $p=0.00$], CFI and TLI were >0.90 (CFI=0.919, TLI=0.923), and the RMSEA was somewhat high (0.116). All of the factor loadings were significant ($p<0.001$) and in the same direction (positive) across the two groups. Third, measurement invariance across boys and girls was examined. In the constrained CFA, the factor loadings and intercepts were held equal across the groups. The results of this model revealed an adequate fit of the model to the data. The chi-squared test of model fit was significant [χ^2 (40)=110.87, $p=0.00$], CFI and TLI were >0.90

Table 2. Stability of participant roles across school years

| Initial | Follow-up assessment | | | |
|-------------------------|----------------------|---------------|---------------|----------|
| | Bully | Assistant | Reinforcer | Defender |
| Full sample ($n=185$) | | | | |
| Bully | 0.53** | 0.50** | 0.52** | -0.13 |
| Assistant | 0.40** | 0.38** | 0.40** | -0.13 |
| Reinforcer | 0.49** | 0.48** | 0.53** | -0.18* |
| Defender | -0.34** | -0.35** | -0.38** | 0.42** |
| Boys only ($n=81$) | | | | |
| Bully | 0.61** | 0.56** | 0.55** | -0.03 |
| Assistant | 0.55** | 0.49** | 0.50** | -0.05 |
| Reinforcer | 0.58** | 0.56** | 0.55** | -0.12 |
| Defender | -0.42* | -0.38** | -0.41** | 0.39** |
| Girls only ($n=104$) | | | | |
| Bully | 0.44** | 0.43** | 0.48** | -0.13 |
| Assistant | 0.27** | 0.27** | 0.32** | -0.13 |
| Reinforcer | 0.39** | 0.39** | 0.51** | -0.22* |
| Defender | -0.25* | -0.30** | -0.33** | 0.43** |

* $p < 0.05$; ** $p < 0.01$.

The stability coefficients in bold showed a significant gender \times bullying role interaction in multiple regression analyses predicting scores at the follow-up assessment, indicating gender moderation in the degree of stability.

(CFI=0.929, TLI=0.929), and RMSEA was acceptable (RMSEA=0.67).² Results of the chi-squared difference test indicated that constraining the model did not worsen the fit of the model [$\chi^2(7)=6.76, p=0.45$]. This finding suggests that there were no major differences in the factor structure of bullying across gender in the current sample.

Stability of Bullying across School Years

Although the factor analyses did not support the validity of separating bullying from assisting and reinforcing, we maintained separate scales in subsequent analyses to determine if the stability of these scales and their associations with external correlates were also similar and supported the results of the factor analyses. The stability of the bullying roles across school years is provided in Table 2. The bullying roles all showed significant ($p < 0.01$) and moderate levels of stability across the two school years (r -values ranging from 0.38 to 0.53). Importantly, the correlation of bullying at the initial assessment with the bullying at the follow-up assessment ($r=0.53, p < 0.01$) was similar to the correlations between bullying at the initial assessment and scores on the ratings of assisting ($r = 0.50, p < 0.01$) and reinforcing ($r=0.52, p < 0.01$) at the follow-up. Thus, bullying scores at the initial assessment were just as predictive of assisting and reinforcing scores at the follow-up as they were of predicting bullying scores at follow-up.

The number of same peer raters at the initial and follow-up assessments was tested as a potential moderator of the stability of the bullying roles across school years.

² The modification indices based on the results of the constrained model provide suggestions for ways to improve the model fit. These suggestions indicate which parameter estimates should be allowed to vary across the groups (freed), by identifying disparities in the observed variable-latent factor relations. The value of the modification indices represents the expected drop in χ^2 if the parameter is freed (Muthèn & Muthèn, 2007). The constrained model did not report any modification indices with a value > 10 .

For these tests, a series of multiple regression analyses were performed, testing whether the variable at the initial assessment showed a significant interaction with the moderator (i.e., number of same raters) in predicting the same variable at follow-up. For the participant role scales of bully (R^2 change = 0.03, $p = 0.01$) and reinforcer (R^2 change = 0.02, $p = 0.05$) there were significant interactions between the scales and the number of same peers rating at the two assessments. As would be expected, the greater the number of same raters at the two time points, the greater their stability on the peer-nominated participant roles. The average number of same raters was 1.16 (SD = 1.29). If the child had more than one same rater, then the stability of bullying was $r = 0.67$. If the child had one or no same rater, the stability was $r = 0.41$. The same was found for reinforcing ($r = 0.68$ vs. $r = 0.43$).

Gender of the child was also tested as a potential moderator of the stability of the bullying roles across school years. Several interactions between gender and scores on the bullying roles at the initial assessment emerged when predicting scores at the follow-up assessment. Specifically, there was a significant interaction between bullying and gender in predicting follow-up bullying scores (R^2 change = 0.02, $p = 0.02$) and between assisting and gender in predicting follow-up assisting scores (R^2 change = 0.03, $p = 0.01$). The difference in stability for these two bullying roles is illustrated in Table 2, where the stability estimates for the bullying roles are provided for boys and girls separately. For both boys and girls, the stability of bullying was significant but this was stronger for boys ($r = 0.61$, $p < 0.01$) than for girls ($r = 0.44$, $p < 0.01$). The results were similar for assisting ($r = 0.49$, $p < 0.01$ for boys; $r = 0.27$; $p < 0.01$ for girls).

Bullying Roles and Aggression

The next set of analyses tested the association between the peer reports of the various bullying roles with self-report of aggression (i.e., proactive-relational, proactive-physical, reactive-relational, reactive-physical) and with self-report of several characteristics associated with aggression (i.e., conduct problems, positive expectations for aggression, CU traits, and prosocial behavior). These correlations are provided in Table 3. As evident from this table, the roles of bully, assistant, and reinforcer were positively associated with all measures of aggression and with the characteristics associated with aggression, except for negative correlations with prosocial behavior. Importantly, and supporting the factor analyses which failed to distinguish among these bullying roles, the correlations with aggression and associated variables were all very similar. The defender role showed an opposite pattern of correlation with aggression and the characteristics associated with aggression.

A series of multiple regression analyses were conducted to determine if gender moderated these associations. The only aggression analyses in which there were significant gender interactions were between bullying and gender (R^2 change = 0.02; $p = 0.008$), assisting and gender (R^2 change = 0.01; $p = 0.03$), and reinforcing and gender (R^2 change = 0.03, $p = 0.001$) in predicting scores on the measure of prosocial behavior. To illustrate the form of this interaction, the correlations are reported in Table 3 for boys and girls separately. For boys, prosocial behavior was significantly negatively related to bullying ($r = -0.39$; $p < 0.01$), assisting ($r = -0.36$; $p < 0.01$), and reinforcing ($r = -0.47$; $p < 0.01$). In girls, prosocial behavior was not significantly related to bullying ($r = -0.15$; $p = \text{n.s.}$) and was not as strongly related to reinforcing ($r = -0.18$; $p < 0.05$) and assisting

Table 3. Correlations between bullying roles and aggression measures at the initial assessment

| | Positive expectations for aggression | | | | | | |
|---------------------|--------------------------------------|--------------------|----------------|----------------------|--------------------|---------------------|-------------------|
| | Conduct problems | Prosocial behavior | CU traits | Proactive-relational | Proactive-physical | Reactive-relational | Reactive-physical |
| Full sample (n=284) | | | | | | | |
| Bully | 0.44** | -0.28** | 0.18** | 0.44** | 0.45** | 0.43** | 0.48** |
| Assistant | 0.41** | -0.27** | 0.18** | 0.35** | 0.37** | 0.35** | 0.41** |
| Reinforcer | 0.45** | -0.34** | 0.21** | 0.42** | 0.44** | 0.42** | 0.48** |
| Defender | -0.23** | 0.37** | -0.20** | -0.20** | -0.27** | -0.22** | -0.28** |
| Boys only (n=130) | | | | | | | |
| Bully | 0.38** | -0.39** | 0.18* | 0.41** | 0.45** | 0.40** | 0.41** |
| Assistant | 0.28** | -0.36** | 0.15 | 0.35** | 0.37** | 0.35** | 0.36** |
| Reinforcer | 0.41** | -0.47** | 0.24** | 0.38** | 0.32** | 0.39** | 0.39** |
| Defender | -0.20** | 0.42** | -0.21* | -0.18* | -0.24** | -0.22** | -0.22** |
| Girls only (n=154) | | | | | | | |
| Bully | 0.50** | -0.15 | 0.17* | 0.48** | 0.48** | 0.47** | 0.53** |
| Assistant | 0.45** | -0.18* | 0.19* | 0.43** | 0.38** | 0.47** | 0.44** |
| Reinforcer | 0.48** | -0.18* | 0.16* | 0.45** | 0.47** | 0.44** | 0.53** |
| Defender | -0.24** | 0.29** | -0.16* | -0.21** | -0.24** | -0.21** | -0.29** |

*p < 0.05; **p < 0.01.

The correlations in bold showed significant gender × role interactions in multiple regression analyses, indicating that gender moderated the association with measures of aggression.

($r = -0.18$; $p < 0.05$). Importantly, and contrary to hypotheses, both physical and relational aggression were significantly correlated with bullying and this was not moderated by gender.

DISCUSSION

The results of the current study support several conclusions about bullying, a form of aggression that is frequently experienced by children at school. As noted in the introduction, recent research has begun to explore the multiple roles that students can play in bullying behavior (Gini, 2006; Gini *et al.*, 2007; Salmivalli *et al.*, 1996). The current results do not support that there is clear utility in distinguishing among those who bully, those who assist the person who bullies, and those who reinforce or encourage the person who bullies. That is, there was no factor-analytic support for the contention that peer reports could differentiate among these roles. Further, participation in any one of these roles in one school year was equally likely to predict being involved in other roles in the next school year. Finally, these three roles showed very similar correlations with aggression and characteristics often associated with aggression, such as conduct problems, CU traits, positive expectancies for aggression, and low levels of prosocial behavior.

The results did, however, find support for identifying persons who help or defend the victim of the bullying. Past research suggests that these “defenders” make up about 20% of school children (Menesini *et al.*, 2000; Monks *et al.*, 2003; Sutton & Smith, 1999). The current results suggest that these defenders are more likely to be girls, show lower levels of aggression, show more prosocial behavior, and show more empathy towards others (e.g., lower levels of CU traits). Further, the level of defending behavior was fairly stable across school years. These findings, combined with research showing that the level of defending in the classroom reduces the overall rate of bullying in the classroom (Salmivalli *et al.*, *in press*), support the potential use of such prosocial defenders in school-based bullying interventions (Frey *et al.*, 2010; Olweus, 1991; Salmivalli, 2010).

The current results also suggest that bullying is highly related to aggressive behavior in general and this was the case for both boys and girls. That is, bullying was related to both reactive and proactive aggression, as well as characteristics often associated with aggression, such as conduct problems, CU traits, and positive expectancies for aggressive behavior (e.g., expectations that aggression will result in positive outcomes) (Marsee & Frick, 2010). This is consistent with past research showing that bullying is associated with aggression more generally among children of this age group (Roland & Idøse, 2001). The current findings, however, were found despite the fact that bullying was based on peer reports and the measures of aggression were assessed using self-report, thus eliminating shared method variance which could inflate the correlations. These results suggest that for both boys and girls, bullying can be thought of as one form of a broader pattern of aggressive behavior with similar emotional, cognitive, and personality correlates. Interestingly, the current results did not support the hypothesis that bullying would be more related to relational aggression in girls and physical aggression in boys. That is, both types of aggression were related to bullying in both sexes. This was despite the fact that the level of aggression showed the expected gender differences, with physical aggression being more common in boys but relational aggression being equally common in boys and girls (David & Kistner, 2000; Puttallaz, Grimes, Foster, Kupersmidt, Cole & Dearing, 2007).

Although bullying behavior was very similar in boys and girls in our study, there were a few gender differences. Specifically, bullying tended to be more stable across the two school years for boys than for girls. Salmivalli and colleagues (1998) reported similar findings over a two-year period, with bullying scores from sixth to eighth grade in boys being 0.52, whereas the stability for girls was 0.28. These results would be consistent with Salmivalli and Voeten's (2004) contention that girls may be more influenced into participating in bullying behavior by social norms, which may change somewhat across school years, whereas boys' individual personality characteristics may be more influential in determining whether or not they participate in bullying behaviors. Our results for personality factors related to bullying were mixed in providing additional support for this possibility. That is, whereas bullying was more strongly negatively associated with prosocial behavior in boys, there were no gender differences in the associations between bullying and CU traits.

All of these interpretations need to be made in the context of several limitations of the study. First, due primarily (a) to the need to only include peer raters whose parents gave consent and (b) to changes in classrooms over a school year, a large number of participants were excluded from the follow-up assessment because of a lack of peer raters who were participants in the study. Although attrition analyses did not reveal significant differences between the initial and follow-up samples, the limited number of participants at follow-up prevented us from replicating the CFA at the second time point. Further, the number of peer raters for each child was lower at the second assessment, which could have also influenced the results related to stability. Second, this was a voluntary study and many of the most aggressive individuals may have been left out of the study because they did not return parental consent. However, the participation rate in the current study is consistent with the rate of active parental consent found in research conducted in other schools characterized by a high rate of poverty (Esbensen, Melde, Taylor & Peterson, 2008). Also, a large study of 13,195 students from 143 high schools did not find that participation rates differed based on the students' aggressive behavior (Easton, Lowry, Brener, Grunbaum & Kann, 2004). Third, it is also possible that the participant roles' scales were too short to appropriately capture the nuances of the different participant roles. It is possible that if the peer report had more items assessing each role, more divergence across these roles would have been found. Finally, it is important to note that this sample consisted of ethnically diverse students in a semi-rural public school system. Thus, although the current sample was more ethnically diverse than much past research studying bullying roles (Gini 2006; Goossens et al., 2006; Salmivalli et al., 1996, 1998), it is not clear how well the current findings would be replicated within more urban school systems.

CONCLUSIONS

Within the context of these limitations, the current results have at least two potentially important implications for reducing bullying in schools. First, these results suggest that bullying might be best understood within the context of the broader construct of aggression. Thus, bullying interventions should target the emotional and cognitive dysfunctions that have been used in interventions for aggressive individuals, such as helping students to learn strategies to regulate anger and to overcome potential cognitive biases that may lead to aggressive behavior (Lochman & Lenhart, 1993).

Second, although the current findings do not provide strong support for separating the roles of bully, reinforcer, and assistant, they do suggest that the role of defender may be important. The current findings suggest that defending behavior is relatively stable across school years and is associated with higher levels of prosocial behaviors and lower levels of aggression and CU traits. Thus, further research is clearly needed to further understand the characteristics of these students who may help to reduce the level of bullying in the school setting and could be important participants in school-wide efforts to reduce bullying (Menesini, Codecasa, Benelli & Cowie, 2003).

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