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Measuring Relational and Overt Aggression by Peer Report: A Comparison of Peer Nominations and Peer Ratings

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Abstract

Peer report of aggression has typically been obtained through peer nominations. The purpose of this study was to identify the extent to which peer nominations and peer ratings identified the same children as aggressive and to explore whether the two methods were equally accurate in identifying children at risk for poor social adjustment. Participants were 1051 students in third, fourth, or fifth grade and were predominantly African American (76.6%). Participants provided self-report of sympathy and peer nominations and ratings of overt and relational aggression, prosocial behavior, and leadership. Teachers reported on participants' school adjustment. Peer nominations and peer ratings of aggressive behavior were closely related. Peer ratings of overt and relational aggression emerged as a unique predictor of all indicators of adjustment, whereas peer nominations were uniquely associated with three of six outcomes of interest. Peer ratings are a promising approach to assessing aggression and may address problems of consumer acceptance.

Keywords

aggression; peer report; measurement; children; adjustment

Aggression during childhood and adolescence is common. However, when it occurs frequently, it can have a significant negative impact on children's short- and long-term psychosocial and academic adjustment (e.g., Card, Stucky, Sawalani, & Little, 2008). One ongoing discussion in the study of youth aggression is how best to measure it. Measurement of aggression is used for many purposes, such as collecting prevalence data, identifying high-risk children, and understanding risk and protective factors as well as outcomes associated with aggressive behavior (Branson & Cornell, 2009; Farrell, Sullivan, Goncy, & Le, 2015). When selecting instruments, researchers need reliable and valid measures of aggression that balance potentially competing goals of accuracy, thoroughness, cost-effectiveness, acceptability, and logistic ease. The purpose of this study is to compare two methods of peer report of children's aggressive behavior—peer nominations and peer ratings—in order to explore the extent to which the different methods identify the same children as overtly or relationally aggressive, and to examine the patterns of relations between peer nominations and peer ratings of aggression and children's social adjustment. Given that peer

and low levels of prosocial behavior. Peer nominations of bullying among middle school students have been shown to predict school adjustment, including discipline referrals, detention, suspensions, and GPA (Branson & Cornell, 2009; Cole, Cornell, & Sheras, 2006), and peer nominations of fighting have been shown to predict a combined measure of poor school adjustment and delinquent behavior, including dropping out of school, school suspension, grade retention, and truancy (Kupersmidt & Coie, 1990). Peer nominations also predict peer relationships and prosocial behavior. Studies of elementary and middle school children have found that children who are nominated as bullies have higher peer-reported popularity (Bouman et al., 2012; Caravita et al., 2009; De Bruyn, et al., 2010) but lower likeability, social preference, and social acceptance (Bouman et al., 2012; Caravita, et al., 2009; De Bruyn et al., 2010), suggesting that these children may have a controversial social status. In a study of children in fourth through sixth grade, children who were nominated as overtly or relationally aggressive were less likely to engage in prosocial behavior (van den Berg et al., 2015), although this may be moderated by gender (e.g., Crick & Grotpeter, 1995). These studies provide strong support for using peer report measures to assess children's aggressive behavior.

Despite the established utility of peer nominations in predicting outcomes, there is some controversy around the ethics of asking children to nominate their peers for negative classification statements (e.g., Bell-Dolan & Wessler, 1994). Some researchers routinely use peer nomination procedures (c.f. Bukowski et al., 2012) and argue that there is minimal evidence of harm caused by peer nominations (e.g., Bell-Dolan & Foster, 1992; Hayvren & Hymel, 1984; Mayeux, Underwood, & Risser, 2007). However, others have argued that these questions may solidify children's negative attitudes towards their disliked peers, and through that, increase the likelihood of aggressive or rejecting behavior towards those peers (Bell-Dolan & Foster, 1992; Mayeux et al., 2007). These questions may also provide implicit adult consent to children saying unkind things about their peers (Hayvren & Hymel, 1984). Perhaps because of these issues, schools and institutional review boards have had concerns about approving peer nomination methodologies (Olweus, 2013; Orpinas & Horne, 2006). These concerns make it important to explore whether it is possible to capture children's perceptions of their peers' behaviors without using nominations, such as through peer ratings. It is possible that peer ratings may be more acceptable to schools, families, and children. Peer ratings may be less likely to further stigmatize peers, in that all students are being rated on a frequency continuum, rather than a few students singled out for undesirable characterological labels. However, the possibility that peer ratings are more acceptable is an assumption at this point, and should be tested in future research.

Peer ratings may also practically improve the measurement of aggression. Peer ratings make it possible to measure each participant's attitudes and feelings towards every student in the class in a dimensional way, rather than simply capturing the most strongly valenced attitudes, which may be based on reputation rather than behavior (Asher & Dodge, 1986; Maassen, van der Linden, Goossens, & Bokhorst, 2000). Using peer nominations, it is possible to capture little to no data regarding the aggressive behavior of many students—that is, a student may have low or moderate levels of aggressive behavior that are not captured by this method. It is also possible that when participants nominate peers who display aggressive behavior, there is a large difference in the degree of aggressive behavior among those youth

(e.g., once a week versus multiple times per day), which is not captured by peer nominations (Maassen et al., 2000). Similarly, it is likely that there are significant differences in rates of aggressive behavior across children who are not nominated by their peers which may not be captured by the peer nomination procedure (Olweus, 2013). Other possible benefits of using ratings instead of nominations include the ability to capture change due to intervention effects. There is evidence that peer ratings are fairly stable over time (Asher & Dodge, 1986; Maassen et al., 2000) as well as sensitive to change over time, such as change due to intervention effects (Asher & Dodge, 1986). In contrast, peer nominations may be less sensitive to change as they are a relative rating measure. That is, peers will continue to identify the most aggressive children in the nominating group even if those children's degree of aggressiveness decreases (Olweus, 2013). For intervention research, in which it is important to gauge response to intervention, it is important to have measures that are sensitive to change—for example, being able to identify that even if a child is still among the most aggressive in his or her class (the whole class reduced in aggression), he or she decreased from an average of three aggressive incidents per week to one per week.

Given possible conceptual and practical benefits of using peer ratings, it is important to examine whether peer ratings are a more effective measure of aggression than peer nominations; however, few studies have explored the relation between peer ratings of aggression and children's adjustment. In a study of sixth grade students in Finnish schools, students were identified as bullies if their peers rated them higher on bullying than any other participant role (e.g., victim; Salmivalli, Lagerspetz, Björqvist, Österman, & Kaukiainen, 1996). Students identified as bullies were more likely to be identified as “least liked” or controversial (highly liked and highly disliked) on peer nomination measures (Salmivalli et al., 1996), which is somewhat consistent with research that classified children as bullies based on peer nominations (e.g., Caravita et al., 2009). This provides emerging evidence that peer ratings of aggression or bullying may function fairly similarly to peer nominations of aggression or bullying.

The first aim of the study was to explore the extent to which different methods of peer report (peer ratings and peer nominations) identify the same children as aggressive. No research identified in this literature review has directly explored this question. This was tested separately for relational aggression and overt aggression given the large body of literature supporting the concept that overt and relational aggression are distinct constructs and may have different levels of visibility (e.g., Crick & Grotpeter, 1995; Putallaz et al., 2007; Sullivan et al., 2006).

The second aim was twofold: to examine whether peer ratings of relational aggression were more effective in identifying children at risk for poor social adjustment than peer nominations, and to examine whether peer ratings of overt aggression were more effective in identifying children at risk for poor social adjustment than peer nominations. Exploring the effectiveness of different peer-report techniques separately for relational and overt aggression made it possible to test the incremental validity of peer ratings vs. peer nominations for different forms of aggression. Social adjustment in the current study was measured by sympathy for others, closeness to teacher, conflict with teacher, oppositional-defiant disorder (ODD) symptoms, leadership, and prosocial behavior. These measures were

selected to assess a range of social adjustment factors, including internal experience (sympathy), school adjustment, and prosocial behavior, given that prior research has identified a link between peer nominations of aggression or bullying and school adjustment and prosocial behavior (e.g., Kupersmidt & Coie, 1990; van den Berg et al., 2015). This question was explored separately for relational aggression and overt aggression. It was hypothesized that peer ratings would be more effective in identifying children with poor social adjustment. Gender was explored as a moderator given previous research suggesting that there may be differential outcomes related to peer nominations of aggression based on gender (Crick & Grotpeter, 1995), but no specific hypotheses regarding gender moderation were made.

Method

Procedure

The current study is a secondary data analysis of baseline data from a larger study examining the impact of the Friend to Friend program, a selective aggression prevention program designed for implementation among African American girls in urban schools (see Leff et al., 2015, for details regarding recruitment and study design). To assess children's baseline functioning, multi-informant surveys were administered in participants' classrooms prior to the initiation of the intervention (October to November). The entire battery of measures were completed in three 45-minute class periods, administered across three days to reduce fatigue. Peer nominations were administered on one day, and peer ratings and self-reported sympathy were administered on the subsequent day. Although post-intervention data was collected, the current study used only the baseline data in order to remove contamination due to intervention effects. Both the researchers' institution's and the school district's institutional review boards approved the study.

Participants

Participants were 1051 students in third, fourth, or fifth grade from 44 classrooms in 6 elementary schools in a large northeastern city. These schools were in an urban, under-resourced school district. Of students who were eligible to participate, 72.5% provided parental consent and their own assent and completed baseline measures. The sample was fairly evenly divided by gender (47.9% male) and was predominantly African American (76.6%). About 15% of participants reported being of mixed ethnicity. Between 144 and 221 students participated in pretest measures from each school. The sample included 437 third grade students, 379 fourth grade students, and 235 fifth grade students.

Measures

Peer nominations of relational and overt aggression.—The peer nomination measures of relational and overt aggression were based on Crick and Grotpeter's (1995) measure. Three peer nomination items assessed relational aggression ("try to make others not like a certain person by spreading rumors about them or talking behind their backs," "try to keep certain people from being in their group when it's time to play or do an activity," and "get even with others by leaving them out when they are mad at them"). Three items assessed overt aggression ("hit or push others," "start fights," and "yell and call others mean

names”). For each of the six items, participants were asked to circle the names of all the students in their classroom who engaged in those behaviors. These measures have been shown to have internal consistency and to have strong convergent validity (Leff et al., 2009). Subscale scores were based on the number of times a child was nominated by his or her peers. The raw scores were standardized within each classroom and re-standardized within grade, resulting in final relational aggression and physical aggression z-scores for each child. Individuals with peer nomination z-scores greater than or equal to 0.5 standard deviations above the mean were designated as aggressive. The 0.5 of a standard deviation cut-off point was chosen based on studies demonstrating that girls receiving standardized ratings at or above this level have significantly more teacher-reported aggression and related difficulties (Leff et al., 2009).

Peer nominations of prosocial behavior and leadership.—An unlimited peer nomination procedure was also used to assess prosocial behavior and leadership. To assess prosocial behavior, one item, based on Crick and Grotpeter’s (1995) measure, asked participants to identify peers who “do nice things for others, help others, or cheer others up.” To assess leadership, one item asked participants to identify peers who “lead peer group activities or games.” The same procedure that was described previously for relational and overt aggression peer nominations was used to derive a final prosocial behavior and leadership z-score for each child.

Peer ratings of relational and overt aggression.—To assess aggressive behaviors, students rated how frequently each classmate engaged in four aggressive behaviors on a scale ranging from 1 - *Not at all* to 5 - *A whole lot*. Two items assessed relational aggression (“How much does each person spread rumors or talk behind others’ backs?”; “How much does each person get even with others by leaving them out when they are mad at them?”), and two items assessed overt aggression (“How much does each person hit or push others?”; “How much does each person start fights?”). These items were based on Crick and Grotpeter’s (1995) peer nominations of aggression measure; one item from each subscale was removed to reduce participant burden. The two items within each subscale that were retained had the highest correlations. Each child received an average peer-rated score per form of aggression, with higher scores indicating higher levels of aggression. As with peer nominations, participants with scores that were greater than or equal to 0.5 standard deviations above the mean were designated as relationally or overtly aggressive.

Sympathy for victims.—Participants self-reported their sympathy for victimized peers on the Peer Sympathy Scale (MacEvoy & Leff, 2012). This measure includes 12 items that assess how bad children would feel for a peer who is the target of aggression on a rating scale from 1 - *Not bad at all* to 5 - *Really bad*. This measure has strong psychometric properties (e.g., strong internal consistency and test-retest reliability; MacEvoy & Leff, 2012), as well as strong internal consistency within the current sample ($\alpha = .87$).

Teacher closeness and conflict.—Teachers rated their closeness to and conflict with each participant on a 5-point scale ranging from 1 - *Definitely does not apply* to 5 - *Definitely applies* (Student-Teacher Relationship Scale; Pianta & Stuhlman, 2004).

Closeness was assessed using 7 items, such as the extent to which the teacher and child “share an affectionate, warm relationship” ($\alpha = .89$). Conflict was assessed using 8 items, such as the extent to which the teacher and child “always seem to be struggling with each other” ($\alpha = .93$).

Oppositional-defiant disorder symptoms.—Teachers rated each participant on the oppositional/defiant behaviors subscale of the IOWA Conner’s Teacher Rating Scale (Pelham, Milich, Murphy, & Murphy, 1989). Teachers responded to 5 items (e.g. acts defiant, has temper outbursts) on a scale ranging from 0 - *Not at all* to 3 - *Very much*. Internal consistency was strong as measured by Cronbach’s alpha ($\alpha = .94$).

Overview of Analyses

Correlations were conducted with peer nominations (z-scores) and peer ratings (mean score) of aggression as continuous variables. For the remainder of the analyses, aggression was dichotomized using a cut-off of 0.5 standard deviations above the mean. To test the extent to which peer ratings and peer nominations for aggression identified the same children (Aim 1), cross-tabulations were conducted first for relational aggression and then for overt aggression. Conducting the analyses separately made it possible to answer the question of overlap in methods of identifying aggressive children (peer nominations and ratings) rather than overlap in forms of aggressive behavior (overt and relational).

Stepwise linear regressions were conducted to examine whether there were differential relations between peer nominations and peer ratings of aggression and concurrent adjustment. These regressions were conducted separately for relational aggression and overt aggression. Each indicator of social adjustment (sympathy, closeness to teacher, conflict with teacher, ODD symptoms, leadership, and prosocial behavior) was entered as a dependent variable. Demographic factors (gender, age, and race or ethnicity) were entered in the first step. Peer ratings and peer nominations were entered simultaneously in the second step in order to determine whether each mode of measurement accounted for unique variance in adjustment after taking shared variance into account. The purpose of this analysis was to explore whether peer nominations or peer ratings were more successful in identifying children with adjustment difficulties for those children who were identified as aggressive via only one method (e.g., by peer nominations and not ratings, or by peer ratings and not by nominations). Gender interactions (peer ratings x gender and peer nominations x gender) were entered in the third step to determine whether the relation between adjustment and aggression, as assessed by different measurement techniques, varied by gender. Each set of regressions was conducted separately for relational and overt aggression. This made it possible to test the question of whether there is any incremental validity for using one type of peer report over the other for each form of aggression.

Results

Descriptive Statistics

In order to determine whether girls or boys were more likely to be identified as overtly or relationally aggressive, chi-squared tests of independence were conducted. There were no

gender differences in relational aggression, measured either by peer nominations ($\chi^2[1] = .66; p = .42$) or by peer ratings ($\chi^2[1] = .93; p = .34$). In contrast, boys were more likely to be identified as overtly aggressive both by peer nominations ($\chi^2[1] = 22.82; p < .001$) and peer ratings ($\chi^2[1] = 11.77; p < .001$). Correlations among predictor variables are reported in Table 1. Age was positively associated with both relational and overt aggression as measured by peer ratings (r s of .07 and .10, respectively) and with relational aggression as measured by peer nominations ($r = .09$). Age was not associated with peer nominations of overt aggression. Although in general measures of aggression were moderately to highly correlated with each other (r s from .57 to .67) across forms of aggression and mode of measurement (e.g., ratings versus nominations), the correlation between peer ratings of relational aggression and of overt aggression was strikingly high ($r = .91$).

Overlap Between Peer Nominations and Peer Ratings of Relational Aggression

Aim 1 of the study was to determine the extent to which peer ratings and peer nominations identified the same children as relationally aggressive and overtly aggressive. Table 2 shows the results of a cross-tabulation used to explore the overlap between children identified as relationally aggressive through peer nominations and peer ratings. Overall, 309 children were identified as relationally aggressive through peer ratings, and 305 through peer nominations. Reliability was moderate as estimated by Cohen's kappa of .54 and percentage agreement in classification of 80.8% (percent of total students that were classified as aggressive by both methods plus percent of total students that were classified as nonaggressive by both methods; Viera & Garrett, 2005). Of the 305 children who were identified as relationally aggressive by peer nominations, about 68% were also identified as relationally aggressive by peer ratings. The percentage agreement related to the absence of relational aggression was strong; about 87% of the 746 children who were identified as not relationally aggressive by peer nominations were also identified as not relationally aggressive by peer ratings. The subsequent analyses focus on understanding the adjustment of children who were uniquely identified as aggressive by either peer nominations or peer ratings. About 9% of the overall sample was identified as relationally aggressive by peer nominations but not peer ratings, and about 10% of the overall sample was identified as relationally aggressive by peer ratings but not peer nominations.

The same cross-tabulation analyses were conducted in order to determine the extent to which peer ratings and peer nominations of overt aggression identified the same children (Table 3). Again, a cut-off of 0.5 standard deviations above the mean was used for both peer ratings and peer nominations. Peer nominations and peer ratings each identified close to 300 children as overtly aggressive (299 and 297, respectively). Reliability was substantial as estimated by a kappa of .63 and an overall percentage agreement of 84.8% (Viera & Garrett, 2005). Both peer nominations and peer ratings identified just under 8% of students as overtly aggressive who were not also identified by the other method.

Peer Nominations and Peer Ratings of Aggression as Correlates of Adjustment

Aim 2 of the study was to examine whether peer nominations and peer ratings of aggression identified children at risk for poor social adjustment equally well. A series of regressions were conducted for each indicator of adjustment, first for relational aggression and then for

overt aggression. These analyses controlled for age, gender, and ethnicity. The results for relational aggression are shown in Table 4. After controlling for shared variance with peer nominations of relational aggression, peer ratings of relational aggression explained unique variance in all six outcomes of interest. That is, peer ratings of relational aggression was associated with less sympathy for victims ($\beta = -.09, p = .02$), lower teacher closeness ($\beta = -.12, p = .002$), greater teacher conflict ($\beta = .31, p < .001$), more symptoms of ODD, ($\beta = .33, p < .001$), and fewer peer nominations of leadership ($\beta = -.07, p = .05$) and prosocial behavior ($\beta = -.22, p < .001$). While controlling for shared variance with peer ratings of relational aggression, peer nominations of relational aggression were associated with greater teacher conflict ($\beta = .21, p < .001$) and symptoms of ODD ($\beta = .26, p < .001$) and fewer nominations of prosocial behavior ($\beta = -.25, p < .001$). Gender did not moderate the relations between peer nominations or peer ratings of relational aggression and any indicator of social adjustment.

Next, a series of regressions was conducted to examine the extent to which peer nominations and peer ratings of overt aggression were uniquely associated with concurrent adjustment outcomes (Table 5). Peer ratings explained unique variance in all six outcomes of interest. Specifically, peer ratings of overt aggression were associated with less sympathy for victims ($\beta = -.09, p = .04$), lower teacher closeness ($\beta = -.13, p = .002$), greater teacher conflict ($\beta = .34, p < .001$), more symptoms of ODD, ($\beta = .36, p < .001$), and fewer peer nominations of leadership ($\beta = -.09, p = .03$) and prosocial behavior ($\beta = -.22, p < .001$). In contrast, while controlling for peer ratings of overt aggression, peer nominations explained unique variance in only three outcomes of interest: teacher conflict ($\beta = .22, p < .001$), symptoms of ODD ($\beta = .27, p < .001$), and prosocial behavior ($\beta = -.26, p < .001$).

Discussion

The purpose of this study was twofold: to determine the extent to which peer nominations and peer ratings of aggression identified the same children as relationally or overtly aggressive, and to explore whether peer nominations or peer ratings were equally effective in identifying children at risk for poor social adjustment. Overall, this study identified a large overlap across children who were identified as relationally aggressive or overtly aggressive by the two methods, suggesting that children are fairly consistent across reports whether they identify aggressive peers by circling their names or by rating their levels of aggressive behavior on a frequency scale. Interestingly, reliability between peer nominations and peer ratings was higher for overt aggression than for relational aggression. This may be due to the more visible nature of the overt aggression construct (e.g., hitting, pushing) compared to the relational aggression construct. It is also possible that when children are asked to identify peers who spread rumors, for example, they may think of peers of whom they have a certain impression (e.g., disliked peers; peers who are considered to be disingenuous or who regularly initiate problems). In contrast, when children are asked to individually rate each student's degree of spreading rumors, they provide information about the relational aggression of all their peers.

Although both peer nominations and peer ratings of aggression were associated with concurrent adjustment, peer ratings had a more consistent pattern of unique associations

with adjustment. That is, peer ratings have incremental validity in this study; they resulted in increased predictive ability of peer report beyond that of peer nominations. Specifically, for both relational and overt aggression, peer ratings and peer nominations each uniquely predicted teacher conflict, ODD symptoms, and prosocial behaviors. However, only peer ratings of both relational and overt aggression uniquely predicted sympathy, teacher closeness, and leadership. These findings are especially striking given that sympathy was self-reported, teacher closeness was teacher-reported, and leadership was peer-nominated. Notably, prosocial behaviors were assessed through peer nominations; as such, there was shared method variance for peer nominations of aggression but not peer ratings of aggression. Consequently, the findings suggest that if researchers plan to collect peer-reported data on aggression, peer ratings may provide more utility in terms of identifying aggressive children with the poorest adjustment. In addition, although peer ratings and peer nominations took equivalent amounts of time to administer in this study, given that all names were read out loud for both types of peer report, the scoring for peer nominations was more time-consuming due to its complexity.

This has some implications for both observational studies and interventions. Measures of aggressive behavior are often used to identify high-risk children in order to place them in selective or indicated preventive interventions (e.g., Henry, Miller-Johnson, Simon, Schoeny, & the Multisite Violence Prevention Project, 2006; Leff et al., 2015). These targeted prevention programs have many benefits, including the ability to focus resources on the most at-risk children, making it vital to accurately identify those children (Offord, 2000). In these cases, a measure of aggression would ideally be associated with children's current functioning in related areas, as well as their subsequent functioning, in order to target children who have the highest need for the intervention.

Limitations and Future Directions

There were several limitations in the current study. One possible area of concern is that peer ratings of overt and relational aggression were more highly correlated with each other ($r = .91$) than were peer nominations of overt and relational aggression ($r = .66$). This rate of correlation is higher than typically found based on peer nominations (e.g., Crick & Grotpeter, 1995). However, in a meta-analysis, the average correlation between direct aggression, (a construct that included overt aggression) and indirect aggression (a construct that included relational aggression) was .76, and this correlation was moderated by ethnicity, such that the correlation was larger among samples with higher percentages of ethnic minority participants (Card et al., 2008). In addition, other research on overt and relational aggression using peer nominations identified that overt and relational aggression were so highly correlated that there was minimal discriminant validity, particularly among boys in fifth and sixth grades. The pattern of correlations suggested that the two forms of aggression were less closely associated as children grew older, especially among girls (Cillessen & Mayeux, 2004). This suggests that overt aggression and relational aggression are more closely associated when children are younger, consistent with findings from our sample of third through fifth grade students. Therefore, it is possible that the peer ratings measure has limited discriminant validity, but it is also possible that this correlation reflects the true co-occurrence of overt and relational aggression in this sample.

The discrepancy between the association of overt and relational aggression as measured by peer ratings compared to peer nominations could have multiple causes. On one hand, it is possible that peer nominations are better at accurately distinguishing between forms of aggression, and that peer ratings have limited discriminant validity for different forms of aggression. On the other hand, peer nominations may be more prone to bias or stigma about peers. That is, peer nominations are based on which classmates children think of when they are asked to consider specific overtly or relationally aggressive behaviors, which may be more closely associated with a child's image or reputation, capturing the strongest attitudes (Asher & Dodge, 1986; Maassen, van der Linden, Goossens, & Bokhorst, 2000). If that is the case, it is possible that overtly and relationally aggressive behaviors are closely associated with each other, whereas having a reputation for engaging in overt aggression and having a reputation for engaging in relational aggression are not closely associated with each other. Of note, we did not control for the other form of aggression in each model (e.g., controlling for overt aggression in the relational aggression models) given the focus of this study was to examine unique contributions of the *method* of aggression measurement. Future studies could examine the research question related to the unique contributions of forms of aggression.

Another limitation is that all analyses were cross-sectional. Previous research has found that peer nominations are a strong predictor of future outcomes as much as 20 years later (Clemans et al., 2014). It will be important to determine whether peer ratings are an equally strong predictor prior to encouraging researchers to replace peer nominations with peer ratings in longitudinal studies. As discussed previously, peer nominations may be a better overall measure of a child's image or reputation. Clemans and colleagues (2014) acknowledged that peer nominations may have been so successful in predicting long-term outcomes partially because peer perceptions may play a stronger causal role in children's outcomes than parent and teacher perceptions. That is, peer perceptions may directly affect how children are treated, which in turn influences their behavior (Clemans et al., 2014). Additionally, the sample in the current study was fairly homogeneous, with all participants living in a large, urban setting, and more than 75% of the sample was African American. It will be important to explore whether peer ratings and peer nominations work differently across different samples. Finally, the same cut-off of 0.5 standard deviations from the mean of aggressive behavior was used for both girls and boys. As gender did not moderate the relation between aggressive classification and adjustment, the cut-off in this study was equally effective in predicting adjustment for both boys and girls. Future research should explore whether different cut-offs for boys and girls increase predictive accuracy.

Conclusion

This paper adds to the current literature by illustrating that peer ratings provide more robust information for use in prevention research. The practice of peer nominations has raised concerns with some schools and institutional review boards (e.g., Orpinas & Horne, 2006), possibly due to concerns about the ethics of using peer nominations to identify children on socially undesirable characteristics (e.g., Olweus, 2013). Peer ratings may be more acceptable to stakeholders, who may perceive them to be less harmful than peer nominations, given that participants rate each of their peers on a behavioral scale rather than

circling peers who epitomize undesirable characteristics. Future research should *empirically* examine these suppositions. In conclusion, when researchers can only choose one method for measuring aggression, the results from the current study provide support that peer ratings are perhaps a more effective measure than peer nominations.

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Table 1.

Cross-sectional correlations among measures of aggression and demographics.

Variable	1	2	3	4	5
1. Age	-				
2. Female gender	-.009	-			
3. Relational aggression - Nominations	.090**	.025	-		
4. Relational aggression - Ratings	.070*	-.075*	.573***	-	
5. Overt aggression - Nominations	.058	-.147***	.656***	.596***	-
6. Overt aggression - Ratings	.102***	-.165***	.573***	.905***	.665***

Note. $N = 1007 - 1051$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2.

Cross-tabulation of the overlap between children identified as relationally aggressive by peer nominations and by peer ratings (both with a cut-off of 0.5 standard deviations above the mean).

Variable		Relationally Aggressive by Peer Ratings		Total
		No	Yes	
Relationally Aggressive by Peer Nominations	No	643 (86.2%)	103 (13.8%)	746
	Yes	99 (32.5%)	206 (67.5%)	305
Total		742	309	1051

N = 1051.

Table 3.

Cross-tabulation of the overlap between children identified as overtly aggressive by peer nominations and by peer ratings (both with a cut-off of 0.5 standard deviations above the mean).

Variable		Overtly Aggressive by Peer Ratings		Total
		No	Yes	
Overtly Aggressive by Peer Nominations	No	672 (89.5%)	79 (10.5%)	751
	Yes	81 (27.1%)	218 (72.9%)	299
Total		753	297	1050

N = 1050.

Table 4. Cross-sectional prediction of adjustment from dichotomized peer nominations and ratings of relational aggression.

Variable	Outcome					
	Sympathy (R ² or β)	Teacher Closeness (R ² or β)	Teacher Conflict (R ² or β)	ODD ^d symptoms (R ² or β)	Leadership (R ² or β)	Prosocial (R ² or β)
<u>Step 1</u>	.034 ***	.023 ***	.064 ***	.041 ***	.038 ***	.097 ***
Age	-.181 ***	-.053	.157 ***	.155 ***	.033	-.033
Female gender	.029	.137 ***	-.196 ***	-.126 ***	.193 ***	.309 ***
Ethnicity	.031	.038	.013	-.019	-.024	.011
<u>Step 2</u>	.016 ***	.010 **	.203 ***	.266 ***	.007 *	.171 ***
RA ^b peer nomination	-.048	.059	.208 ***	.258 ***	-.014	-.253 ***
RA peer rating	-.092 *	-.118 **	.307 ***	.332 ***	-.074 *	-.219 ***
<u>Step 3</u>	.000	.001	.003	.002	.003	.002
Gender x RA nomination	-.043	-.038	-.182	-.149	.061	.157
Gender x RA rating	.076	.108	.014	-.020	.126	-.113

Note. N = 860 – 1006.

^a Oppositional-defiant disorder.

^b Relational aggression.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5.

Cross-sectional prediction of adjustment from dichotomized peer nominations and ratings of overt aggression.

Variable	Outcome					
	Sympathy (R ² or β)	Teacher Closeness (R ² or β)	Teacher Conflict (R ² or β)	ODD ^a symptoms (R ² or β)	Leadership (R ² or β)	Prosocial (R ² or β)
<u>Step 1</u>	.035 ***	.023 ***	.065 ***	.041 ***	.038 ***	.096 ***
Age	-.108 ***	-.053	.158 ***	.155 ***	.034	-.032
Female gender	.388	.138 ***	-.197 ***	-.127 ***	.191 ***	.308 ***
Ethnicity	.029	.038	.013	-.019	-.025	.011
<u>Step 2</u>	.012 **	.014 ***	.243 ***	.313 ***	.005	.176 ***
OA ^b peer nomination	-.031	.017	.216 ***	.265 ***	.054	-.255 ***
OA peer rating	-.090 *	-.129 **	.337 ***	.364 ***	-.089 *	-.218 ***
<u>Step 3</u>	.000	.004	.002	.000	.002	.000
Gender x OA nomination	-.022	-.231	-.138	-.031	-.049	-.054
Gender x OA rating	.009	.219	.004	-.045	.147	.052

Note. N = 859 – 1005.

^aOppositional-defiant disorder.^bRelational aggression.*
 $p < .05$.**
 $p < .01$.***
 $p < .001$.