Comparing reports of peer rejection: Associations with rejection sensitivity, victimization, aggression, and friendship

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A B S T R A C T

Perceiving that one is rejected is an important correlate of emotional maladjustment. Yet, self-perceptions can substantially differ from classmate-reports of who is rejected. In this study, discrepancies between self- and classmate-reports of rejection were identified in 359 Australian adolescents (age 10–12 years). As expected, adolescents who overestimated rejection reported more rejection sensitivity and felt more victimized by their peers, but were not seen by peers as more victimized. Adolescents who underestimated rejection identified themselves as high in overt aggression, and their peers identified them as high in overt and relational aggression and low in prosocial behavior. Yet, underestimators’ feelings of friendship satisfaction did not seem to suffer and they reported low rejection sensitivity. Results suggest that interventions to promote adolescent health should explicitly recognize the different needs of those who do and do not seem to perceive their high rejection, as well as adolescents who overestimate their rejection.

Theory and research identify peer rejection in adolescence as a significant risk for emotional maladjustment (Beeri & Lev-Wiesel, 2012; Zimmer-Gembeck, Hunter, Waters, & Pronk, 2009), but research also has identified the particular importance of adolescents’ perceptions of whether they are accepted or rejected by their peers (Bowker & Spencer, 2010; Graham, Bellmore, & Juvonen, 2003). When adolescents perceive they are rejected, the link with emotional maladjustment is often even stronger, accounting for additional variance in depressive symptoms and other aspects of emotional health (White & Kistner, 2011).

Because of the importance of perceptions of belonging and rejection for understanding emotional health (Baumeister & Leary, 1995), perceptual differences have been an increasing focus of recent research. Results show that some adolescents have perceptions of their peer rejection that agree with their peers’ reports, but others over- or underestimate their peer problems (Cole, Martin, Peeke, Serocsynski, & Hoffman, 1998; Hoffman, Cole, Martin, Tram, & Serocsynski, 2000; Zimmer-Gembeck, Hunter, & Pronk, 2007). Overestimation of rejection, defined as an elevated perception of being disliked (i.e., rejected) when compared to reports from others about whom they do dislike, has been found to identify a group of young people that is at similar risk for mental health problems when compared to young people who are actually highly rejected (Graham et al., 2003; Hoffman et al., 2000; Sandstrom, Cillessen, & Eisenhower, 2003; White & Kistner, 2011). In fact, it is not even the case that many overestimators can actually be called rejected since their peers often say they are average or even
more likely to have lower levels of self-esteem and other positive attributes when compared to rejected adolescents who are aware of their rejection (or those who underestimate rejection; David & Kistner, 2000). On the other hand, previous research has found that they are higher in aggressive behavior than their typical peers, although almost all studies have been conducted with children rather than adolescents and almost all have focused on overt (i.e., physical and verbal) aggression only (Brendgen, Vitaro, Turgeon, Poulin, & Wanner, 2004; Edens, Cavell, & Hughes, 1999; Guerra, Asher, & De Rosier, 2004; White & Kistner, 2011).

Thus, previous research has shown that there are groups of young people who overestimate or underestimate their rejection by peers. This information has been useful for identifying elevated symptoms of mental health problems, but no study has focused on identifying personal and social factors that are likely to account for youth’s overestimation and underestimation of rejection. In the present study, the aim was to identify correlates of overestimation and underestimation of rejection focusing on factors amenable to intervention such as social cognitive biases and social behavior and experiences. It was anticipated that this information could be useful for developing interventions to address the diversity of needs of young people at risk of mental health problems. Such information could also identify personal and social factors associated with adolescents’ positive self-perceptions despite the negative views of others.

Rejection sensitivity as a correlate of overestimation

The rejection sensitivity (RS) model (Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998) has drawn attention to the particular expectations of others and interpretation of ambiguous social events, which differ between youth. RS has been defined as the tendency to anxiously expect rejection and to readily perceive and overreact to it (Downey & Feldman, 1996). Downey and colleagues proposed that rejection experiences instigate a disposition toward RS. Consistent with this, RS has been found to be an outcome of rejection experiences, even when rejection is collected by methods other than self-report (London, Downey, Bonica, & Paltin, 2007; Sandstrom et al., 2003). RS is accompanied by, and foreshadows, emotional maladjustment, as well (Marston, Hare, & Allen, 2010; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Sandstrom et al., 2003). In addition to being a concern for adjustment problems, a pattern of RS, which involves biased perceptions of social events, should identify young people who are particularly likely to overreport peer rejection (Sandstrom et al., 2003). Yet no previous study has directly addressed whether RS is associated with biased perceptions of rejection. Hence, our first purpose was to examine the association between RS and overestimation of rejection, with the expectation that early adolescents who were higher in RS would be more likely to overestimate their rejection.

Victimization, aggression, prosocial behavior and friendship

Focusing on peer rejection is only one way of identifying problems or success with peers and it may not completely capture all of the important peer social experiences that impact on adolescents’ self-perceptions of how much they are accepted or rejected. Hence, a second purpose of the current study was to examine other aspects of the peer social environment, namely victimization, aggression, prosocial behavior and friendship satisfaction, in order to identify other social experiences that might explain overestimation and underestimation of peer rejection. Peer rejection is known to be higher among adolescents who are victimized or aggressive, whether it is physical/verbal (Wei & Chen, 2009; Zimmer-Gembeck, Geiger, & Crick, 2005) or relational (Crick & Grotputer, 1995). Yet, measures of rejection, victimization, aggression and prosocial behavior can capture different aspects of peer relationships and interactions. For example, not all victimized adolescents are rejected, and this particularly has been found for relational victimization, whereby some young people are both victimized and liked by their peers (Geiger, Zimmer-Gembeck, & Crick, 2004; Ray, Cohen, Secrist, & Duncan, 1997; Zimmer-Gembeck, Prong, Goodwin, Mastro, & Crick, 2013). Hence, some victimized adolescents may overestimate their rejection.

A similar argument can be made about peer rejection and friendship quality. Some children who are disliked by the peer group (i.e., rejected children) report high quality friendships and the associations between peer rejection and friendship satisfaction among adolescents are often quite modest (Hodges, Boivin, Vitaro, & Bukowski, 1999). This suggests that friendship experiences may be somewhat disconnected from general peer group acceptance or rejection, and could play a unique role in adolescents’ perceptions of their own rejection. Hence, when adolescents perceive their friendship quality as low, they may overestimate their peer rejection even when their broader peer group reports lower rejection. In the present
study, we expected friendship quality to be associated with overestimation of peer rejection, with overestimators expected to report less satisfying friendships than their rejected or underestimating peers.

Finally, our third purpose was to examine aggression and low prosocial behavior, expecting these behaviors to stand out among adolescents who underestimated their rejection. Such findings would add to the existing literature that has shown that some aggressive children do not perceive the negative effects this behavior may be having on their relationships. For example, there is a small but growing body of research that provides evidence of the negative side of an inflated perception of competence or a low awareness of personal social deficits. In these studies, aggressive children or adolescents report that they are quite liked by others, very socially competent, or low in rejection despite discrepant reports from teachers and peers (Hughes, Cavell, & Grossman, 1997; Hymel, Bowker, & Woody, 1993; Prasad-Gamir, Hughes, & Cavell, 2001).

To our knowledge, however, almost all of this research has only focused on overt aggression in children. It important to extend this work to early adolescence when self-perceptions should be more mature (Harter, 2012; Marsh, Craven, & Debus, 1998) and to examine other important behavioral aspects of social competence with peers, including relational aggression and prosocial behavior. Only one study has examined relational aggression, showing that it is associated with positively biased perceptions of competence with peers (David & Kistner, 2000) and it is unknown whether children who underestimate their rejection are more aggressive and less prosocial. Moreover, focusing on prosocial behavior, in addition to aggression, should inform interventions to optimize emotional and social health. Intervention strategies might need to differ if children are highly aggressive and prosocial compared to if they are highly aggressive and having problems with prosocial behavior. Given the negative associations between aggressive behavior and prosocial behavior found in previous research, we anticipated that the latter pattern would be supported in the present study.

Aims of the present study

In summary, the purpose of the present study was to identify correlates of overestimating and underestimating peer rejection. The hypothesized correlates were rejection sensitivity and friendship satisfaction, overt and relational victimization by classmates, overt and relational aggression, and prosocial behavior. Adolescents self-reported their rejection sensitivity, best friendship satisfaction, and overt victimization and aggression. We were not permitted by the education administration to collect classmate reports of overt victimization and aggression, but data on relational victimization and aggression were collected via both self-report and classmate-report. Classmates reported prosocial behavior. Our first hypothesis was that rejection sensitivity, victimization, and low friendship satisfaction would uniquely account for adolescents’ greater overestimation of their rejection, with overestimators更高 in rejection sensitivity and victimization and lower in friendship satisfaction. We also identified five groups of adolescents, including those who perceived their high rejection, perceived their low rejection or perceived they were typical, as well as those who overestimated or underestimated their rejection. Using these groups, our second hypothesis was that overestimators and those who perceived their high rejection would have elevated rejection sensitivity and victimization, and lower friendship satisfaction, when compared to their typical, low rejected and underestimating classmates. Our third hypothesis was that underestimators of rejection would be higher in aggression and lower in prosocial behavior than their typical, low rejected and overestimating peers, and would not differ from their peers who perceived their high rejection.

Method

Participants

Participants were 359 early adolescents from two Australian state elementary schools (21 classrooms). All had parental consent to participate, with a consent rate just over 70%. Participants were aged 10 to 12 (M = 11, SD = .9). Approximately equal numbers of males and females participated (52% and 48%, respectively). Both schools contained students from the lower-middle to the high-middle range of socioeconomic status, and ethnicity represented the region from which the schools were selected, with approximately 90% white/Australian or New Zealander, and 10% Asian, Aboriginal Australian, Maori, Middle Eastern or from other sociocultural backgrounds.

Measures

Peer-report of rejection

Students nominated up to three classmates they liked most and liked least. Peer acceptance and rejection scores were calculated by summing nominations for each, respectively, and standardizing within each classroom following procedures developed in past research (Coe, Dodge, & Coppotelli, 1982; Crick, 1996). Low social preference was then calculated by subtracting peer acceptance from peer rejection, so that higher scores indicated more peer rejection (net of acceptance). When reversed and referred to as social preference, this measure has been shown to be highly correlated with a liking rating, whereby children rate each of a list of classmates on a single item usually ranging from 1 (dislike very much) to 5 (like very much) (Bukowski, Sippola, Hoza, & Newcomb, 2000). In addition, stability scores of nomination methods and
liking rating methods have been similar in previous research (Terry & Coie, 1991). For clarity, this measure will be referred to as peer rejection in the current study.

Perceived peer rejection

To parallel peer report items, students completed two items to indicate how much they perceived their peers liked ("kids like me") or did not like them ("it is hard for kids to like me"). Response options ranged from 1 (not at all true) to 5 (very true). Perceived liking was subtracted from dislike to yield a measure of perceived low peer preference. This measure was standardized prior to analyses with higher scores indicating lower perceived social preference.

Rejection sensitivity

The Children’s Rejection Sensitivity Questionnaire (CRSQ; Downey, Lebolt, Rincon, & Freitas, 1998) included six ambiguous vignettes involving peers and teachers (e.g., “Imagine that a famous person is coming to visit your school. Your teacher is going to pick five kids to meet this person. You wonder if she will choose YOU”). Following each vignette, students responded to three questions to gauge their emotional reactions and expectations. The first two questions assessed anxious and angry responses by asking how nervous and how mad/angry they would feel in this situation. Responses to these two items ranged from 1 (not at all) to 5 (yes/extremely). In the third question, students reported the likelihood of an accepting versus a rejecting response. Responses ranged from 1 (no) to 5 (yes).

Scoring of the CRSQ involves weighting the expectation response by the anxious and angry responses prior to averaging items (Feldman & Downey, 1994). The weighting is done by reversing the response to the expectation item and multiplying it by reported anxiety and anger for each vignette. Weighted scores were then averaged to produce cross-situational anxious expectation and angry expectation scores. Finally, all anxious and angry expectation scores were averaged to form a total rejection sensitivity score. Higher scores indicated more rejection sensitivity, α = .84.

Peer relational victimization and aggression

Students nominated up to three classmates who best fit each of a series of behavioral descriptors drawn from the Children’s Social Behavior Scale (Crick & Grotputer, 1995; Crick, 1996). Five items assessed relational victimization (e.g., “Who in your grade have you seen being ignored on purpose?”), five items assessed relational aggression (e.g., “Who spreads rumours, gossip or talks behind other people’s backs?”), and two items assessed prosocial behavior (e.g., “Who is nice and kind to others?”). Nominations received by each student for each item were summed and standardized within classroom to adjust for unequal class sizes. Items were then averaged to yield a subscale score for relational victimization, relational aggression, and prosocial behavior. Cronbach’s α = .90 for relational victimization, .87 for relational aggression, and .83 for prosocial behavior. We could not use classmate nomination methods to assess overt victimization because of government education department restrictions.

Self-report of victimization and aggression

Three items assessed perceived overt (physical/verbal) victimization, four items assessed perceived relational victimization, three items assessed overt aggression and three items assessed relational aggression. The wording of the relational victimization and aggression items paralleled the items used for peer nominations. Response options for each item ranged from 1 (not at all true) to 5 (very true). Items were developed by Crick and Grotputer (1995) and extended by Zimmer-Gembeck and Pronek (2012). An example physical victimization item is “Kids call me bad names.” An example verbal victimization item is “Kids threaten to or do push, shove or hit me.” An example verbal victimization item is “Kids call me bad names.” An example verbal victimization item is “Kids threaten to or do push, shove or hit me.” An example relational victimization item is “Some of my friends are nice to me one day and mean to me the next.” Aggression items were reworded to refer to one’s own behavior. For example, “I threaten to or do push, shove or hit other kids” and “I leave other kids out of things on purpose”. Cronbach’s α = .83 for the overt victimization items. Cronbach’s α = .83 for the overt victimization items, .77 for the relational victimization items, .74 for the overt aggression items, and .51 for the relational aggression items.

Friendship satisfaction

Two items from the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985) were used to assess adolescents’ satisfaction with their best friendships, e.g., “How happy are you with the way things are between you and your very best friend?” with response options ranging from 1 (not happy) to 5 (extremely happy). Responses were averaged so that higher scores indicated more satisfaction with friendships, Cronbach’s α = .80.

Procedure

After approval of the study by the university Human Ethics Review Committee and receiving active parental consent, as well as student consent, questionnaires were administered to all students within their regular classrooms during school hours. Two separate sessions were held approximately one week apart. Each student received a small token of appreciation at the final time of testing. Questionnaires were read aloud. Individual debriefing was made available to students by the researchers following the data collection. The study was part of a larger study on rejection resilience and well-being. Students took approximately 30 min to complete the portion of the questionnaires used here.
Results

Descriptive statistics and simple correlations

As can be seen in Table 1, adolescents who perceived they were more rejected reported greater rejection sensitivity, victimization, relational aggression, and lower friendship satisfaction. Also, when adolescents perceived they were more rejected, their peers reported that they were more relationally victimized and less prosocial. Higher rejection, as identified by classmates, was associated with more victimization, more aggression, less prosocial behavior, and less friendship satisfaction, but classmate-reported rejection was not associated with rejection sensitivity. Age was only associated with more overt aggression. Gender was associated with most measures. Girls were less rejected and relationally victimized and more prosocial according to classmates. Girls reported higher friendship satisfaction, less overt victimization and aggression, and less relational aggression.

Overestimation of rejection: associations with sensitivity, victimization, and friendship

To examine the correlates of overestimation of peer rejection, we first followed a technique used by David and Kistner (2000), Hoffman et al. (2000), and Zimmer-Gembeck et al. (2007). This technique involved regressing perceived peer rejection on classmate-nominations of peer rejection to estimate residuals. These residuals provided an estimate of the difference between each adolescent’s perception and the prediction based on classmate-report of rejection. Hence, higher scores indicated overestimation and lower scores indicated underestimation of rejection. For clarity, this measure is referred to as overestimation. Regression was then used to determine whether there was a linear association between overestimation and other measures. In this model, we first entered variables expected to be associated with overestimation of rejection (rejection sensitivity, friendship, and victimization). In Step 2 we entered measures that were expected to be associated with underestimation of rejection (aggression and prosocial behavior).

In Step 1, after adjusting for age and gender, associations were found between rejection sensitivity, self-report of overt victimization, and friendship satisfaction, as expected (Hypothesis 1; see Table 2). Adolescents higher in overestimation reported more rejection sensitivity, more overt victimization, and less friendship satisfaction. However, relational victimization (self- and classmate-reported) was not associated with overestimation of peer rejection in this model. In Step 2, measures of overt and relational aggression were associated with less overestimation of rejection (i.e., more underestimation). In total, the model accounted for 30% of the variance in overestimation.

Comparisons of underestimators and overestimators of peer rejection to others

We next isolated five groups using procedures similar to those used in past research (Graham et al., 2003; Zimmer-Gembeck et al., 2007) in order to 1) examine the mean level differences in rejection sensitivity, victimization and friendship satisfaction between overestimators and other groups of adolescents (Hypothesis 2), and 2) test whether underestimators were higher in aggression and lower in prosocial behavior than most other groups of adolescents (Hypothesis 3). The groups were identified from perceived and classmate reports of rejection. Adolescents were classified as overestimators if they perceived rejection in the highest 25th percentile, but their peers reported rejection in the lowest 50th percentile.

Table 1
Means, standard deviations and Pearson’s correlations between all measured variables (N = 359).

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR Peer rejection</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>CR Peer rejection</td>
<td>.27**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>SR Rejection sensitivity</td>
<td>.42**</td>
<td>.14</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>SR Friend satisfaction</td>
<td>-.29**</td>
<td>-.19**</td>
<td>-.21**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>SR Overt victimization</td>
<td>.39**</td>
<td>.28**</td>
<td>.22**</td>
<td>-.08</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>SR Relational victimization</td>
<td>.38**</td>
<td>.24**</td>
<td>.30**</td>
<td>-.21**</td>
<td>.66**</td>
<td>-</td>
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<tr>
<td>SR Overt aggression</td>
<td>.09</td>
<td>.26**</td>
<td>.10</td>
<td>-.08</td>
<td>.34**</td>
<td>.18**</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>SR Relational aggression</td>
<td>.14**</td>
<td>.14**</td>
<td>.16**</td>
<td>-.15**</td>
<td>.12*</td>
<td>.10</td>
<td>.48**</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>CR Relational victimization</td>
<td>.39**</td>
<td>.60**</td>
<td>.22**</td>
<td>-.19**</td>
<td>.35**</td>
<td>.30**</td>
<td>.12*</td>
<td>.04</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>CR Relational aggression</td>
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<td>.36**</td>
<td>-.07</td>
<td>.03</td>
<td>.23**</td>
<td>.25**</td>
<td>.16**</td>
<td>-.08</td>
<td>.14**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CR Prosocial behavior</td>
<td>-.16**</td>
<td>-.56**</td>
<td>-.09</td>
<td>.15**</td>
<td>-.25**</td>
<td>-.20**</td>
<td>-.27**</td>
<td>-.16**</td>
<td>-.34**</td>
<td>-.32**</td>
<td>-</td>
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<tr>
<td>Age</td>
<td>.01</td>
<td>.05</td>
<td>-.01</td>
<td>-.03</td>
<td>.02</td>
<td>.02</td>
<td>.14**</td>
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<td>-.01</td>
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<tr>
<td>Gender</td>
<td>.01</td>
<td>-.14**</td>
<td>.04</td>
<td>.11</td>
<td>-.17**</td>
<td>.08</td>
<td>-.29**</td>
<td>-.11**</td>
<td>-.11**</td>
<td>.02</td>
<td>.30**</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>-1.96b</td>
<td>-.02b</td>
<td>5.84</td>
<td>4.20</td>
<td>1.78</td>
<td>1.71</td>
<td>1.24</td>
<td>1.14</td>
<td>.00</td>
<td>-.05</td>
<td>.07</td>
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<tr>
<td>(SD)</td>
<td>(.192)</td>
<td>(.154)</td>
<td>(2.29)</td>
<td>(.78)</td>
<td>(.84)</td>
<td>(.94)</td>
<td>(.41)</td>
<td>(.30)</td>
<td>(.83)</td>
<td>(.76)</td>
<td>(.95)</td>
</tr>
</tbody>
</table>

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


Point-biserial associations are reported. Gender was coded 0 = boy, 1 = girl.

b The Mean and SD reported here are prior to standardizing peer rejection. However, standardized values were used in the correlations and in all remaining analyses (M = 0, SD = 1).
When comparing second hypothesis, it was overestimators and high rejection concordants who had more problems than the other three groups.

Moreover, compared to overestimators, underestimators were more aggressive, less prosocial, less rejection sensitive and aggressive, on a self-report and a classmate-report measure, and were reported by their classmates to be less prosocial, of prosocial behavior. Yet, they had higher classmate-reported relational aggression and lower prosocial behavior than all other in their high level of self-reported overt aggression, high level of classmate-reported relational aggression, and low level of prosocial behavior. They were perceived by their peers as less victimized and rejected, but they had high rejection sensitivity and perceived high social rejection concordant group and the underestimators, and they did not differ from the typical group. Hence, overestimators reported rejection were compared, adolescents who overestimated their rejection were less rejected than both the high rejection concordant group and the underestimators, and they did not differ from each other. Each group reported high rejection sensitivity and high victimization, which differed from the other three groups. When classmate-reports of relational victimization were compared, however, the overestimators were underestimators or higher for underestimators than overestimators, with self-report measures expected to be highest for underestimators or higher for underestimators than overestimators, with self-report measures before classmate-report of relational victimization. The next four rows summarize unique group differences were then identified using multinomial logistic regression.

**Simple group comparisons**

ANOVA results for measures expected to identify overestimators are shown in the first five rows of Table 3, with self-report measures prior to classmate-report of relational victimization. The next four rows summarize findings for those measures expected to be highest for underestimators or higher for underestimators than overestimators, with self-report measures prior to classmate-report measures. The last two rows provide the average self-reported and classmate-reported rejection in each group, so that the extent of group differences in measures used the form the groups is clear. Superscripts are used to indicate groups that did not differ (same superscript) or did differ (different superscript) from each other. Because of multiple comparisons, the alpha level was adjusted to \( p < .005 \), and all differences met this criterion.

There were significant group differences on all measures except for self-report of relational aggression. Supporting our second hypothesis, it was overestimators and high rejection concordants who had more problems than the other three groups when comparing self-report measures of rejection sensitivity, victimization and friendship satisfaction (see Table 3). Moreover, for these self-report measures, it was always the case that the overestimators and the high rejection concordant group did not differ from each other. Each group reported high rejection sensitivity and high victimization, which differed from the other three groups. When classmate-reports of relational victimization were compared, however, the overestimators were reported to be less victimized than the high rejection concordant group. In addition, when average levels of classmate-reported rejection were compared, adolescents who overestimated their rejection were less rejected than both the high rejection concordant group and the underestimators, and they did not differ from the typical group. Hence, overestimators were perceived by their peers as less victimized and rejected, but they had high rejection sensitivity and perceived high social problems.

Supporting the third hypothesis, the underestimators and the high rejection concordant group did not differ from each other in their high level of self-reported overt aggression, high level of classmate-reported relational aggression, and low level of prosocial behavior. Yet, they had higher classmate-reported relational aggression and lower prosocial behavior than all other groups, and they also had a high level of self-reported overt aggression, on average. Thus, underestimators were highly aggressive, on a self-report and a classmate-report measure, and were reported by their classmates to be less prosocial, making them quite similar in behavior when compared to adolescents who accurately perceived their high rejection. Moreover, compared to overestimators, underestimators were more aggressive, less prosocial, less rejection sensitive and

\[ R^2 = .26, F(7,351) = 17.01, p < .01 \]

\[ B \ (SE) \]

\[ \beta \]

\[ \text{Step 1, } R^2 = .04, F_{\text{adj}}(4, 347) = 4.99, p < .01 \]

\[ \text{Step 2, } \Delta R^2 = .04, F_{\text{adj}}(4, 347) = 4.99, p < .01 \]

\[ \text{Step 1, } R^2 = .30, F(11, 347) = 13.40, p < .01 \]

\[ \text{Step 2, } \Delta R^2 = .26, F(11, 347) = 13.40, p < .01 \]

\[ \text{ANOVA results for measures expected to identify overestimators are shown in the first five rows of Table 3, with self-report measures prior to classmate-report of relational victimization. The next four rows summarize findings for those measures expected to be highest for underestimators or higher for underestimators than overestimators, with self-report measures prior to classmate-report measures. The last two rows provide the average self-reported and classmate-reported rejection in each group, so that the extent of group differences in measures used the form the groups is clear. Superscripts are used to indicate groups that did not differ (same superscript) or did differ (different superscript) from each other. Because of multiple comparisons, the alpha level was adjusted to } p < .005, \text{ and all differences met this criterion.} \]

\[ \text{There were significant group differences on all measures except for self-report of relational aggression. Supporting our second hypothesis, it was overestimators and high rejection concordants who had more problems than the other three groups when comparing self-report measures of rejection sensitivity, victimization and friendship satisfaction (see Table 3). Moreover, for these self-report measures, it was always the case that the overestimators and the high rejection concordant group did not differ from each other. Each group reported high rejection sensitivity and high victimization, which differed from the other three groups. When classmate-reports of relational victimization were compared, however, the overestimators were reported to be less victimized than the high rejection concordant group. In addition, when average levels of classmate-reported rejection were compared, adolescents who overestimated their rejection were less rejected than both the high rejection concordant group and the underestimators, and they did not differ from the typical group. Hence, overestimators were perceived by their peers as less victimized and rejected, but they had high rejection sensitivity and perceived high social problems.} \]

\[ \text{Supporting the third hypothesis, the underestimators and the high rejection concordant group did not differ from each other in their high level of self-reported overt aggression, high level of classmate-reported relational aggression, and low level of prosocial behavior. Yet, they had higher classmate-reported relational aggression and lower prosocial behavior than all other groups, and they also had a high level of self-reported overt aggression, on average. Thus, underestimators were highly aggressive, on a self-report and a classmate-report measure, and were reported by their classmates to be less prosocial, making them quite similar in behavior when compared to adolescents who accurately perceived their high rejection. Moreover, compared to overestimators, underestimators were more aggressive, less prosocial, less rejection sensitive and} \]

\[ (n = 57, 16\%). \text{ Adolescents were underestimators if they perceived rejection in the lower 25th percentile, but their classmates reported rejection in the highest 50th percentile (n = 54, 15%). Two other groups accurately perceived their low or high rejection; adolescents were low rejection concordant if they scored in the lowest 25th percentile (n = 30, 8%) and high rejection concordant if they scored in the highest 25th percentile (n = 34, 9%) on both self-report and classmate-report of rejection. The remaining participants, which did not meet the criteria for one of these four groups, were classified as typical (n = 184, 51%). Groups were compared using ANOVA with significant effects evaluated using Bonferroni posthoc pairwise comparisons. The unique group differences were then identified using multinomial logistic regression.} \]

\[ \text{Note. Final } R^2 = .30, F(11, 347) = 13.40, p < .01. \text{ The regressions were also fit with anxious RS separate from angry RS. The pattern of results was similar to those reported here. However, the association between RS and overestimation was somewhat weaker in each model (.20 for anxious RS and .13 for angry RS).} \]
In other analyses, underestimators of rejection likely to overestimate rejection when they report more rejection sensitivity feel more victimized and are less satisfied with their friendships.

**Multivariate results**

To examine the unique group differences, we used multinomial logistic regression, with group as the dependent variable and measures of RS, victimization, friendship satisfaction, aggression and prosocial behavior entered simultaneously as the independent variables. Two models were estimated to compare 1) the typical group to all other groups, and 2) the overestimators to all other groups. Gender and age were included as covariates. When compared to the typical group in the first model, overestimators were higher in RS (odds ratio, OR = 1.20, \( p < .01 \)) and lower in friendship satisfaction (OR = .45, \( p < .01 \)). Underestimators were higher in self-report of overt aggression (OR = 2.65, \( p < .05 \)), higher in classmate-report of relational aggression (OR = 2.43, \( p < .01 \)), and lower in prosocial behavior (OR = .33, \( p < .01 \)). In the second model comparing all groups to the overestimators, underestimators were higher in classmate-report of relational victimization (OR = 1.84, \( p < .05 \)) and aggression (OR = .98, \( p < .01 \)), higher in self-report of overt aggression (OR = 3.13, \( p < .05 \)), and lower in prosocial behavior (OR = .33, \( p < .01 \)). Further, all of the other pairwise differences shown in Table 3 were confirmed in these models.

**Discussion**

In the present study, support was found for our hypotheses regarding the correlates of overestimation and underestimation of rejection among early adolescents. In the variable-oriented regression model, we found that adolescents are more likely to overestimate rejection when they report more rejection sensitivity feel more victimized and are less satisfied with their friendships. In other analyses, five groups were isolated for comparison: overestimators, underestimators, two groups who agreed with their classmates about their low or high rejection, and typical adolescents. In univariate and multivariate comparisons of these groups, hypotheses about overestimators were generally re-confirmed, as were hypotheses about underestimators of rejection.

**Correlates of rejection overestimation**

Classmates nominated same age peers who were relationally victimized (e.g., were excluded from groups), relationally aggressive (e.g., excluded and ostracized others) and prosocial (e.g., nice and kind) at their school. The measure of classmate-reported relational victimization, although associated with peer rejection in simple correlations, was not uniquely associated with overestimating rejection in the multivariate analysis. This may have been because relational victimization reported by classmates did not appear to have a linear association with overestimation. Instead, overestimators were moderate in victimization compared to their classmates, not differing from typical adolescents but lower than the high rejection concordant group. Hence, it was early adolescents’ self-reports of their greater rejection sensitivity, as well as their greater perceived victimization and lower perceived friendship satisfaction that were found to be significant unique correlates of overestimation of peer rejection. Yet, classmates did not view them as highly relational victimized – at least not more so than the typical early adolescent in this sample. These findings emphasize the importance of social cognitive biases and social perceptions in overestimation. Overestimators’ problems in the peer group seem to be due to their high sensitivity to rejection, which may make many of their social problems more imagined than actual and make them particularly likely to perceive rejection even in the face of very ambiguous interactions and rather minimal social challenges (Ayduk & Gyurak, 2009).
Underestimators were higher in self reports of overt aggression, classmate reports of relational aggression, and lower in classmate reports of prosocial behavior compared to all other adolescents, except those whose perceptions were concordant with their peers about their high rejection. Consistent with underestimation, these adolescents were also lower in rejection sensitivity, but somewhat inconsistent with their behavior, they also reported that they were more satisfied with their friendships than overestimators and adolescents who perceived their high rejection. The multivariate rejection and multinomial logistic models were consistent with most of these group differences.

Underestimators appear to be protected by their low rejection sensitivity, which may assist them to maintain their more positive views of their self, and their positive views of their relationship status with peers and friends. Classmates’ nominations identified underestimators as more rejected, on average, than almost all of their classmates; only the high rejection concordant group was more rejected. Yet, underestimators perceived themselves as similar in rejection to typical adolescents and reported they were less rejected than both overestimators and the high rejection concordant group. They also self-reported low rejection sensitivity and high friendship satisfaction, but also high overt aggression. Their peers perceived them as high in relational aggression and low in prosocial behavior. Hence, as other research has reported, overly positive views are associated with more aggression. It may be that aggression is one outcome of having one’s positive views challenged by others (Baumeister, Smart, & Boden, 1996; David & Kistner, 2000). Another possibility is that this group makes external attributions for social failure, in the form of blaming others. Such external attributions were associated with aggressive responses to peers in one study of preadolescents (Guerra et al., 2004).

In somewhat related research, there is other evidence that inflated positive views of the self or relationships may be associated with aggressive behavior. Associations between narcissism, defined as inflated self-perception or overly positive self-presentation (Wallace, Barry, Zeigler-Hill, & Green, 2012), and aggression have been found in multiple studies of, mostly high risk, adolescents (e.g., Golmaryami & Barry, 2010). Wallace et al. (2012) argued that aggression might be one tool that those high in narcissism may use to obtain desired outcomes.

There are also two social explanations for why underestimators may be high in aggression. First, the friendship group may play a role. Aggressive adolescents may form associations with other aggressive youth, which may explain why they underestimate their rejection by the broader peer group but feel less rejected because they associate with like peers and friends (see Guerra et al., 2004). Second, aggressive children may not get the feedback from peers that others receive because their classmates find it easier to display positive acceptance and support, to reduce the likelihood of being a personal target of aggression (see David & Kistner, 2000). Yet, these social explanations suggest future research directions, because they do not completely explain why underestimators would differ from the high rejection concordant group in their perceptions of rejection. The high rejection concordant group would be expected to also have friends who are similar in behavior, and to have these same social interactions with peers.

Implications for intervention

These findings could be applied to guide intervention design. For overestimators, an intervention aimed at cognition and emotion about relationships could be beneficial in assisting young people to manage rejection sensitivity and difficulty with peer interactions (e.g., see Rabiner & Cole, 1989). The primary focus of an intervention could include building skills to change expectations of peers and social interactions, identifying and capitalizing on competencies outside the social domain, or assisting with emotion regulation, thinking styles, and coping strategies. Overestimators are likely to be motivated to make changes once they are assisted to confront their biases and given opportunities to have positive experiences that build their competence and confidence.

A different approach may be needed when young people recognize that they are highly rejected by their peers. They are aware of their negative status and need support to decrease their overt aggressive behavior in order to secure a better standing among peers (Guerra et al., 2004). Hence, they may be most amenable to assistance to improve their social, friendship formation and relationship maintenance skills and to practice these skills. They also may be highly victimized and aggressive, which should be addressed. They may be reacting with aggression to their victimization, so finding other ways to cope with victimization may take priority for intervention. This suggests future research should differentiate proactive from reactive aggression to better pinpoint intervention needs to improve the social relationships, while also reducing the victimization and aggression, in this high rejection concordant group.

The current findings provide some information that could assist with interventions to optimize the development of those who underestimate their rejection, but additional research is needed given the complex patterns identified here. Adolescents who underestimate their rejection are high in aggression, but perceive their friendships as generally satisfying. Also, although there was no unique association of prosocial behavior in our variable-oriented regression model, a low level of prosocial behavior, reported by classmates, was found among adolescents who underestimate their rejection when groups were
compared. No previous study has examined prosocial behavior as a correlate of perceptual bias of rejection. This finding deserves further attention because it suggests a particular intervention strategy with underestimators in order to reduce their aggressive behavior at the same time as assisting them to engage in more prosocial behavior.

Also, underestimators seem able to protect themselves from negative social information via low rejection sensitivity or other cognitive or social means. However, given the links with overly positive self-views and proactive aggression found in other research (Hare, 1991), this aggression deserves intervention, as this group is likely to be at risk for future personal and social problems (see also Hughes, Cavell, & Prasad-Gaur, 2001). Yet, underestimators may be at risk of other difficulties if the approach negatively impacts their self or relationship views; there may be a tradeoff of externalizing for internalizing symptoms (David & Kistner, 2000). Hence, future research is needed to better guide the particular intervention strategies that might be useful. In particular, future research could isolate whether it is proactive or reactive aggression, or both, that is highest in this group, whether there are other signs of disorder, and to compare peer social status and competence in other domains.

Summary, limitations and conclusion

The findings support rejection sensitivity, victimization and friendship as correlates of adolescents’ perceptions of rejection that diverge or are similar to classmates’ reports. Findings also show how low rejection sensitivity may confer some protection from perceptions of social problems, but that such adolescents seem to engage in more overt and relational aggression and be less prosocial with their peers.

This study did have some limitations, however. First, classmate reports of overt victimization and aggression were not available. Second, there may be explanations for the findings that are outside the domain of this study. For example, social cognition develops throughout childhood and into adolescence (Harter, 2012; Marsh et al., 1998). Hence, although few correlations with age were found, cognitive maturity may explain some of these findings.

Third, the present findings are cross-sectional. It is possible that social experiences guide perceptual bias, as much as perceptual bias guides social experiences. Little longitudinal research has addressed this topic, but one study reported that aggressive behavior increased over time following perceptions of peer relationships and external attributions for social problems (Guerra et al., 2004), suggesting that perceptions may precede aggressive behavior.

Despite study limitations, rejection sensitivity unmistakably differentiates adolescents who overestimate or underesti-

mulate their rejection. Also, overestimators feel more victimized then they are reported to be by their classmates, and underestimators are more aggressive than would be expected to be based on their reports of their own rejection and friendship satisfaction. Identifying these diverse groups of adolescents, who differ in their own views of their peer rejection compared to their classmates’ reports, will assist in developing an indicated approach to intervention practices in order to eventually provide a better fit with adolescents’ needs (Sandstrom et al., 2003). Future research could differentiate proactive from reactive aggression, identify other aspects of social status that might differ between overestimators and underestimators of rejection, and assess potential coping and other cognitive or emotion regulatory strategies used by adolescents when facing social challenges. Such research could provide new ideas for supporting good peer relationships and promoting optimum emotional health, while recognizing adolescents’ personal and situational diversity.

References


