ABSTRACT. The authors examined short-term temporal stability of reactive and proactive aggression, as well as short-term consistency of differential relations of reactive versus proactive aggression to 4 correlates. The authors used parent, teacher, peer, and self-report measures twice across 1 year to assess reactive aggression, proactive aggression, hyperactivity, social skills, anger expression, and depressive symptoms of 2nd-grade boys and girls ($N = 57$). Both subtypes of aggression remained stable across the year, even when the other subtype of aggression was explained at each assessment. Reactive aggression, but not proactive aggression, was consistently positively related to hyperactivity, poor social skills, and anger expression at each assessment.

Keywords: proactive aggression, reactive aggression, second-grade students
territorial gain or social dominance. Theoretically, proactive aggression fits the social-learning model of aggression (Bandura, 1973, 1983), which postulates that aggression is an acquired behavior governed by reinforcement contingencies.

Researchers hypothesized that there were distinct groups of aggressive children; one group displays primarily reactive aggression, and the other group displays primarily proactive aggression (Dodge, 1991). However, in most studies to date, the correlation between reactive and proactive aggression ranges from .70 to .85 (e.g., Crick & Dodge, 1996; Dodge & Coie, 1987; Hubbard et al., 2002). Those strong correlations imply that the two subtypes of aggression tend to co-occur; that is, most aggressive children display some degree of reactive and proactive aggression. In other words, the subtypes of aggression can be conceptualized most accurately as continuous dimensions that exist to varying degrees in each aggressive child, rather than as exclusive categories in which children are placed.

Researchers have identified several unique correlates for each of the aggressive subtypes, suggesting that children’s levels of reactive and proactive aggression are related to variations in distinct social cognitive, behavioral, social, and emotional correlates. Those findings clearly emerge when researchers use partial correlations to account for the variance attributable to the other subtype of aggression, although the magnitude of these partial correlations is usually modest to moderate. Cronbach (1951) argued that two measures that do not relate to other variables in the same way must represent distinct constructs, even if they are highly correlated. Thus, the growing literature on the differential correlates of the subtypes of aggression provides one indication that the distinction between reactive and proactive aggression is valid.

In terms of social-cognitive correlates, reactive aggression relates positively to hostile attributional biases (e.g., de Castro, Merk, Koops, Veerman, & Bosch, 2005) and aggressive social problem solving (e.g., Day, Bream, & Pal, 1992) in middle childhood, whereas proactive aggression relates positively to constructive outcome expectations for aggression (e.g., Smithmyer, Hubbard, & Simons, 2000) and the tendency to prioritize instrumental goals over social goals in the same age group (e.g., Salmivalli, Ojanen, Haanpaa, & Peets, 2005). With respect to behavioral correlates, reactive aggression relates positively to social withdrawal (e.g., Poulin & Boivin, 2000), hyperactivity (e.g., Waschbusch, Willoughby, & Pelham, 1998), and poor social skills (e.g., Dodge, Lochman, Harnish, Bates, & Pettit, 1997) in middle childhood and dating violence in adolescence (e.g., Brendgen, Vitaro, Tremblay, & Lavoie, 2001).

In contrast, proactive aggression relates positively to juvenile delinquency (e.g., Vitaro, Brendgen, & Tremblay, 2002). Regarding social correlates, reactive aggression relates positively to peer rejection (e.g., Dodge, Coie, Pettit, & Price, 1990) and peer victimization (e.g., Schwartz et al., 1998) in middle childhood, whereas proactive aggression relates positively to having deviant friends in adolescence (e.g., Vitaro, Gendreau, Tremblay, & Olligey, 1998). An examination of emotional correlates indicates that reactive aggression relates positively to anger
(e.g., Hubbard et al., 2002) and depression (e.g., Day et al., 1992) in middle childhood, whereas proactive aggression in adolescence relates to greater expectancies of happiness after aggressive acts (Arsenio, Gold, & Adams, 2004). In terms of etiology, reactive aggression relates to earlier harsh parenting (e.g., Dodge et al., 2003), whereas proactive aggression relates to family history of substance abuse and violence (Connor, Steingard, Cunningham, Anderson, & Melloni, 2004).

Those data illustrate the differing etiologies, mechanisms, and developmental trajectories of the subtypes of aggression. According to our conceptualization, aggressive children are behaviorally and emotionally dysregulated, and this temperamental dysregulation makes them anger easily. When those children are raised in homes characterized by harsh parenting, they learn to model hostile attributional biases and aggressive problem solving. When they begin to interact with others, the combination of emotional dysregulation and social cognitive biases causes them to display reactive aggression when provoked. Over time, peers respond to the displays with rejection and victimization, experiences that may lead to feelings of depression for some aggressive children. If the pattern continues unchecked, children who are reactively aggressive toward their peers may develop into adults who are reactively aggressive toward their partners.

Although children with aggressive behaviors may experience negative social consequences, they may also learn through experience that aggression is effective when they pursue instrumental goals. In that way, children who begin to display primarily reactive aggression may engage in more proactive aggression over time. Thus, for many children, reactive aggression likely precedes proactive aggression and serves as a catalyst for its development. That emerging behavior pattern is reinforced by abusive parents and deviant peers, who model the efficacy of proactive aggressive behavior for children. Eventually, the pattern may result in sustained proactive aggression in the form of juvenile delinquency or adult criminality.

That theoretical picture indicates that it is not only possible for reactive and proactive aggression to occur in the same children, but also likely. At the same time, the aggressive behavior pattern suggests that the subtypes of aggression that emerge from distinct etiologies are driven by different mechanisms and lead to discrete negative outcomes. Admittedly, the scope of the present study will not permit us to assess the validity of the entire theory. Even so, we explicate the entire theory to create a fuller picture of what the empirical data may represent.

Researchers in the field of childhood aggression have worked diligently to quantify the empirical correlates of reactive and proactive aggression and to construct a theoretically meaningful story from the findings (e.g., Dodge, 1991). However, they have not yet addressed some fundamental aspects of the validity of the distinction between reactive and proactive aggression. Therefore, the study of reactive and proactive aggression is a classic example of “putting the cart before the horse.” Our overarching goal in this study was to address one basic aspect of the validity of the distinction between the subtypes of aggression,
namely, temporal stability. We recognize that this goal represents only a small part of the theoretical framework outlined above, but the establishment of the temporal stability of reactive and proactive aggression is a necessary precursor to the examination of the larger theoretical picture.

Although five published longitudinal investigations have included the measurement of reactive and proactive aggression at a single time point (Brendgen et al., 2001; Dodge et al., 2003; Dodge et al., 1997; Vitaro et al., 2002; Vitaro et al., 1998), none have measured the subtypes of aggression at more than one time point. Thus, first we conducted a short-term longitudinal study of the stability of reactive and proactive aggression by measuring reactive and proactive aggression at two time points across 1 year in a sample of 57 second-grade boys and girls. We hypothesized that reactive and proactive aggression would demonstrate stability across the course of 1 year, even when controlling for the influence of the other subtype of aggression at each time point. We recognized that a more thorough answer to the question of temporal stability will require a larger sample followed across a longer time span; however, we considered this study as a first step.

By measuring reactive and proactive aggression at two time points, we assessed whether several concurrent correlates of the subtypes of aggression remained consistent across time. We addressed the second goal of our study by measuring four hypothesized correlates at each of the same two time points. We focused on four correlates that empirical work and theory suggest should be related to reactive aggression but not to proactive aggression: (a) hyperactivity, (b) social skills, (c) anger expression (tendency for children to display overtly angry expressions), and (d) depressive symptoms. Thus, we hypothesized that reactive aggression, but not proactive aggression, would be concurrently positively related to hyperactivity, anger expression, and depressive symptoms, and concurrently negatively related to social skills; furthermore, we expected that these relations would remain consistent across time.

Method

Participants

Participants were 57 second-grade children (35 boys and 22 girls) drawn from 21 classrooms in a school district in a mid-Atlantic state. Thirty-four of the children were Black, 18 were White, 3 were of mixed race, and 2 were Hispanic. Their mean family income was $38,000, ranging from $6,000 to $100,000. We originally contacted 63 families; 57 families (90%) agreed to participate.

We sampled more aggressive children than would have been chosen through random selection to ensure that adequate levels of aggressive behavior were represented. For that reason, we screened children 2 months prior to the first time point with two teacher-rating instruments for reactive and proactive
aggression that were developed by Dodge and Coie (1987) and Brown, Atkins, Osborne, and Milnamow (1996). Thirty-eight of the 57 children scored one standard deviation or higher above the mean on averaged teacher ratings of reactive aggression, proactive aggression, or both, whereas 19 children scored within one half standard deviation of the mean on averaged teacher ratings of reactive and proactive aggression. Research assistants who worked with the participants and families were not aware that the population was preselected because they were highly aggressive.

We studied second-grade children because generalized aggression (which does not make a distinction between reactive and proactive subtypes) becomes stable by this age (Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003; van Beijsterveldt, Bartels, Hudziak, & Boomsma, 2003). We wanted to learn whether the subtypes of aggression also demonstrate stability by this developmental period.

Procedures

We collected data on reactive aggression, proactive aggression, hyperactivity, social skills, anger expression (display of anger), and depressive symptoms at two time points: Time 1 (late fall of second grade) and Time 2 (late fall of third grade). We collected data for each construct from four sources: parent, teacher, peer, and self-report measures.

Research assistants collected teacher and peer-report data through 26 and 21 classroom visits at Time 1 and Time 2, respectively. Four-to-eight research assistants conducted 20-min individual interviews with each child with parental permission. At that time, teachers completed measures for each target child in their classroom, which required about 30 min. The teachers received $20 per child at each time point.

Two research assistants collected parent and self-report data through 1-hr home visits at each time point. During the visits, one research assistant collected the self-report data in an individual interview with the child. Simultaneously, the other research assistant gave the parent (or primary caregiver) a packet of measures to complete, either in written format or in interview format if the parent experienced reading difficulties. Parents received $20 and children received $10 at each time point.

Research assistants collected data from the four sources for each of the 57 children at Time 1. At Time 2, the assistants collected data from the four sources for 46 of the children; 6 children were missing peer data, 3 children were missing parent and self data, 1 child was missing parent data, and 1 child was missing all sources except peer data. In cases of missing data, we based our analyses on existing sources of data. We conducted attrition analyses on all variables by comparing children who had complete data from the four sources at both time points with those who had missing data. The two groups did not differ on any variable.
Measures

**Teacher measures.** At each time point, teachers completed five measures for each child. The first measure was Dodge and Coie's (1987) six-item scale of reactive and proactive aggression. Internal consistency of the reactive aggression items was .94 at Time 1 and .91 at Time 2; internal consistency of the proactive items was .80 at Time 1 and .85 at Time 2. Dodge and Coie found that their teacher ratings of each subtype of aggression related significantly to observations of that subtype of aggression in a playgroup context, even when common variance from observations of the other subtype of aggression were taken into account.

The second measure was Brown et al.’s (1996) 16-item measure of reactive and proactive aggression. Internal consistency of the reactive aggression items was .95 at Time 1 and .94 at Time 2; internal consistency of the proactive items was .87 at Time 1 and .94 at Time 2. Brown and colleagues used factor analysis to determine that items indexing reactive and proactive aggression from their measure loaded onto separate factors. We assessed the subtypes of aggression with both of those widely used measures to provide a thorough measurement of our primary constructs.

The third measure was the Behavioral Assessment System for Children (BASC), which provided data on hyperactivity, behavioral social skills, and depressive symptoms. Internal consistencies were .93 at both time points for the 13-item Hyperactivity subscale; .93 and .92 for the 12-item Social Skills subscale at Times 1 and 2, respectively; and .81 and .84 for the 10-item Depression subscale at Times 1 and 2, respectively. Using that measure, we demonstrated an 8-week test-retest reliability averaging .87, and interrater reliability averaging .70. In addition, the subscales of the teacher BASC correlated highly with their counterpart subscales on the Achenbach Teacher Report Form (Achenbach, 1991; Reynolds & Kamphaus, 1992).

The fourth measure was the three-item Dysregulated Expression subscale of the teacher version of the Children’s Anger Management Scale (CAMS; Zeman, Shipman, & Suvey, 2002), which provided data on anger expression. The self-report version of the CAMS is well-validated, and Zeman et al. recently modified the scale for use by teachers and parents. An elevated score on the measure indicates higher levels of displayed anger. We used the CAMS because it is the only existing measure that specifically assesses anger expression. Internal consistency was .85 at both time points.

The fifth measure was the three-item Social Competence subscale of Harter’s Teacher Rating Scale of Child’s Actual Behavior, which provided data on friendship-based social skills. In our study, internal consistency was .96 at both time points. That measure has shown good test-retest reliability, with correlations ranging from .67 to .73 over 6 months (Cole, Martin, Powers, & Truglio, 1996; Harter, 1985).

Some measures of social skills emphasize friendship making, whereas others stress specific behaviors. We assessed the construct globally with a measure that
included both aspects of social skills. However, to our knowledge, no existing measure of social skills adequately addresses both friendship making and behavior-based social skills. Therefore, throughout the four data sources, we included measures of friendship-based social skills and behavioral social skills.

**Parent measures.** At each time point, parents completed five measures. The first measure was Dodge and Coie’s (1987) six-item measure of reactive and proactive aggression, reworded to be appropriate for parents. Internal consistency in our study was .83 at Time 1 and .77 at Time 2 for reactive aggression and .82 at Time 1 and .67 at Time 2 for proactive aggression. Poulin and Boivin (2000) used Dodge and Coie’s measure reworded for parents and found that the data fit a two-factor model significantly better than did a one-factor model.

The second measure was Brown et al.’s (1996) 16-item scale of reactive and proactive aggression, again reworded to be appropriate for parents. Internal consistency in our study was .85 at Time 1 and .82 at Time 2 for reactive aggression and .69 at Time 1 and .74 at Time 2 for proactive aggression. Marcus and Kramer (2001) used Brown et al.’s measure reworded for parents and found a similar factor structure to that obtained by Brown et al. when they used teacher ratings.

The third measure was the parent BASC, which provided data on hyperactivity, behavioral social skills, and depressive symptoms. Internal consistency was .81 at both time points for the 10-item Hyperactivity subscale, .92 at both time points for the 14-item Social Skills subscale, and .86 at both time points for the 12-item Depression subscale. In previous studies, the measure showed 8-week test-retest reliability averaging .88, and interparent correlations averaging .57. Furthermore, the subscales of the parent BASC correlated highly with their counterpart subscales on the Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991; Reynolds & Kamphaus, 1992).

The fourth measure was the three-item Dysregulated Expression subscale of the parent version of the CAMS, which provided data on anger expression. In our study, internal consistency was .81 at Time 1 and .68 at Time 2.

The fifth measure was the three-item Social Competence subscale of Harter’s (1985) Parent Rating Scale of Child’s Actual Behavior, which provided data on friendship-based social skills. We found that internal consistency was .89 at Time 1 and .93 at Time 2. The parent version of the Harter scale has shown good test-retest reliability; correlations ranged from .71 to .80 over a 4-month period (Cole et al., 1996; Harter, 1985).

**Self-report measures.** At each time point, children completed six measures. The first measure was a three-item, newly developed self-report measure of reactive and proactive aggression. One item assessed reactive aggression (“I fight or say mean things when something bad happens to me”), and two items assessed proactive aggression (“I pick on or bully other kids just to be mean”; “I fight or say mean things so that I can get something I want”).
The second measure was the 10-item short version of the Children’s Depression Inventory (CDI-S; Kovacs, 1985). Internal consistency was at .82 Time 1 and .69 at Time 2. Kovacs (1992) found that the CDI-S correlated highly with the full inventory \( r = .89 \). In addition, the CDI-S demonstrated acceptable test-retest reliability, ranging from .74 to .77 (Smucker, W. E. Craighead, L. W. Craighead, & Green, 1986).

The third measure included 10 items selected from the Hyperactivity subscales of the parent and teacher BASCs that were reworded to be appropriate for self-report. Internal consistency was .76 at Time 1 and .81 at Time 2.

The fourth measure was the three-item Dysregulated Expression subscale of the self-report version of the CAMS, which provided data on anger expression. Internal consistency was .53 at Time 1 and .54 at Time 2. The construct validity of the scale has been demonstrated through comparisons with scales from the CBCL (Shields & Cicchetti, 1997) and the Emotion Regulation Checklist (Suveg & Zeman, 2004; Zeman, Shipman, & Pensa-Clyve, 2001; Zeman, Shipman, & Suveg, 2002).

The fifth measure included 11 items selected from the Matson Evaluation of Social Skills with Youngsters (MESSY), which provided data on behavioral social skills. Internal consistency was .55 at Time 1 and .77 at Time 2. The test–retest reliability of the scale averaged .50; it correlated with teacher ratings of popularity and social skills (Matson, 1994).

The sixth measure was the six-item Social Competence subscale of Harter’s Self-Perception Profile for Children (Harter, 1982, 1985), which provided data on friendship-based social skills. Internal consistency was .69 at Time 1 and .61 at Time 2. Three-month test-retest of the Social Competence subscale ranged from .70 to .87.

**Peer measures.** At each time point, all classmates of target children with parent permission completed eight unlimited peer nominations. Items provided data on reactive aggression (“Who fights or says mean things when something bad happens to them?”), proactive aggression (“Who picks on or bullies other kids just to be mean?”, “Who fights or says mean things so that they can get something that they want?”), depressive symptoms (“Who looks sad a lot?”), anger expression (“Who looks angry a lot?”), hyperactivity (“Who gets out of their seat when they are not supposed to or talks when they are not supposed to?”), behavior-based social skills (“Who cooperates, helps others, and shares?”), and friendship-based social skills (“Who makes friends easily?”).

For each construct that we assessed with multiple peer nominations (proactive aggression, social skills), the number of nominations that each child received for each item was standardized within the classroom, the standardized scores were summed, and the total score was restandardized within the classroom. For each construct assessed with a single peer nomination (reactive aggression, hyperactivity, anger expression, depressive symptoms), the number of nominations that each child received was standardized within the classroom.
That procedure is similar to the one outlined and validated by Coie, Dodge, and Coppotelli (1982), except that they used unlimited nominations, rather than limited nominations. The unlimited procedure is superior because a greater range of values is obtained, there is less skewness and kurtosis in the distribution of nominations, and measurement error is reduced (Terry, 2000). Also, Terry (1999) stated that reliable and valid sociometric data can be collected with unlimited nominations when as few as 40% of the children in a classroom participate. Our classroom participation rates ranged from 42% to 89%, and averaged 69%.

We did not limit nominations to same-sex peers, and we did not standardize nominations within gender as well as within classrooms. Terry and Coie (1991) examined whether such practices affect peer nomination data. They found that scores calculated taking gender into account correlated .90 with those calculated without considering gender.

Results

Descriptive Analyses

Table 1 shows the means and standard deviations for each variable at both time points. They reflect original scores before standardization and aggregation. All variables represent averages across the items of each measure.

Aggregation of Variables and Preliminary Analyses

We created several new measures to assess constructs for which valid measures did not exist. Before including the new measures in the across-source aggregate variables that we used for analyses, we determined whether they were valid. A newly developed measure was valid if it correlated significantly with at least one other measure of the same construct from a different source for one of the time points. All measures met the criterion except the (a) self-report measures of reactive aggression, proactive aggression, and behavior-based social skills; (b) parents’ measures of anger expression; and (c) peers’ measures of depressive symptoms. We excluded those measures from further analyses.

For remaining measures, we first standardized the behavior-based and friendship-based measures of social skills across the 57 participants and averaged them within source and time point. Second, we averaged the two teacher measures of reactive aggression and the two teacher measures of proactive aggression. We averaged the parent measures of the subtypes of aggression in the same manner. Third, and finally, for each of the six constructs at each time point, we standardized measures from each source across the 57 participants and averaged them to form aggregate variables. In cases of missing data, we based averages on existing sources of data.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Source</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Reactive aggression</td>
<td>Parenta</td>
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</tr>
<tr>
<td></td>
<td>Teachera</td>
<td>3.39</td>
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<tr>
<td></td>
<td>Peerb</td>
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<td>1.02</td>
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<tr>
<td></td>
<td>Selfc</td>
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<td>1.17</td>
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<td>Parenta</td>
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<td>Teachera</td>
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<tr>
<td></td>
<td>Selfc</td>
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<td>0.54</td>
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<td>Hyperactivity</td>
<td>Parenta</td>
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<td>Teachera</td>
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<td>0.89</td>
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<td></td>
<td>Selfc</td>
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TABLE 1. Continued

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<tr>
<td></td>
<td></td>
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<td>SD</td>
<td>M</td>
<td>SD</td>
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<tr>
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<td>Peer(^b)</td>
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<td>Anger expression</td>
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<td>0.61</td>
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<td>1.29</td>
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<td>0.24</td>
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</table>

Note. All descriptive statistics provided are for raw variables before aggregation and standardization.  
\(^a\)Rated on a scale from 1 (never) to 5 (almost always).  
\(^b\)Rated by unlimited peer nominations.  
\(^c\)Rated on a scale from 1 (not at all) to 5 (a whole lot).  
\(^d\)Rated on a scale of 1 (negative description is “really true”), 2 (negative description is “sort of true”), 3 (positive description is “sort of true”), and 4 (positive description is “really true”).  
\(^e\)Rated on a scale of 1 (negative description is “really like me”), 2 (negative description is “sort of like me”), 3 (positive description is “sort of like me”), 4 (positive description is “really like me”).  
\(^f\)Choice of three statements: 1 representing minimum depressive symptomatology to 3 representing serious depressive symptomatology.
We used zero-order correlations to assess the temporal stability of the four correlates across time. Stability correlations were (a) .58 for hyperactivity, (b) .69 for social skills, (c) .67 for anger expression, and (d) .52 for depressive symptoms. Thus, each variable demonstrated adequate temporal stability over 1 year.

Stability of Reactive and Proactive Aggression

We used partial correlation analyses to assess the stability of reactive and proactive aggression across the two time points. With that approach, we considered the variance attributable to the other subtype of aggression; this was important because reactive and proactive aggression were highly correlated (Time 1 = .82, Time 2 = .85). We assessed the stability of unique or pure measures of each subtype of aggression by controlling for the other subtype.

In the first analysis, we assessed the stability of reactive aggression from Time 1 to Time 2. The correlated variables were Time 1 and Time 2 reactive aggression, whereas the control variables were Time 1 and Time 2 proactive aggression. We used the complementary format to assess the stability of proactive aggression. Table 2 shows the results of the partial correlations. Using that approach, Time 1 reactive aggression related significantly to Time 2 reactive aggression, and Time 1 proactive aggression related significantly to Time 2 proactive aggression. That result indicates that reactive and proactive aggressions were stable over 1 year, even when we accounted for the variance attributable to the other subtype of aggression at both time points.

For further comparison, we completed two additional partial correlations to assess the relation between Time 1 reactive aggression and Time 2 proactive aggression, as well as the converse. In those analyses, earlier proactive aggression was unrelated to later reactive aggression when the other subtype of aggression was considered at each time point. The complementary finding held for earlier

<table>
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<th>Variables</th>
<th>T 2 (reactive aggression)</th>
<th>T 2 (proactive aggression)</th>
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</thead>
<tbody>
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<td>T 1 reactive aggression</td>
<td>.408**\textsuperscript{a}</td>
<td>-.167\textsuperscript{b}</td>
</tr>
<tr>
<td>T 1 proactive aggression</td>
<td>-.176\textsuperscript{c}</td>
<td>.264\textsuperscript{d}</td>
</tr>
</tbody>
</table>

\textbf{Note.} T 1 = Time 1; T 2 = Time 2. \textsuperscript{a}Controlling for T 1 and T 2 proactive aggression. \textsuperscript{b}Controlling for T 1 and T 2 reactive aggression. \textsuperscript{c}Controlling for T 1 reactive aggression and T 2 proactive aggression. \textsuperscript{d}Controlling for T 1 proactive aggression and T 2 reactive aggression.

* \(p < .05; ** \(p < .01.\)
reactive aggression and later proactive aggression. Therefore, although each subtype of aggression was stable over 1 year, the correlations across subtypes over time were not significant (see Table 2).

**Consistency of the Concurrent Correlates of Reactive and Proactive Aggression**

We conducted 16 partial correlations to assess the concurrent relations of the subtypes of aggression to each of the four correlates at each time point. In each analysis, the variables were one subtype of aggression and one correlate at the same time point, and the control variable was the other subtype of aggression at that time point.

As hypothesized, reactive aggression related positively to hyperactivity and anger expression and related negatively to social skills at each time point. Reactive aggression related positively to depressive symptoms at Time 1, but not at Time 2. Proactive aggression did not relate to any correlates at any time point, with the exception of a negative relation between proactive aggression and depressive symptoms at Time 1.

**Discussion**

As our first goal, we assessed the short-term temporal stability of children’s reactive and proactive aggression over 1 year. This was the first study in which subtypes of aggression were measured at more than one time point, which allowed us to examine the temporal stability of the subtypes of aggression over any length of time. Results indicated that both subtypes of aggression were stable across time, even when we controlled for the variance attributable to the other subtype of aggression at each time point. The results were particularly salient when we addressed the stability of the constructs, given that the findings emerged so strongly in a sample of only 57 children.

In contrast, neither subtype of aggression ever related to the other subtype at a later time point. Initially, we were surprised at those findings because aggression subtypes have been so highly concurrently correlated across numerous studies. However, the difference between previous analyses and ours is that longitudinal data allowed us to conduct partial correlation analyses to assess the relations between pure measures of reactive and proactive aggression—indexes of the constructs that controlled for the overlapping variance attributable to the other subtype of aggression. In contrast, researchers previously examined the concurrent relations between reactive and proactive aggression without controlling for the overlap, which likely accounted for the strong positive relations.

Little, Jones, Henrich, & Hawley (2003) provided further support for the idea that pure indexes of the subtypes of aggression, which control for the variance attributable to the other subtype, are unrelated. They used structural equation modeling to examine the association between pure forms of the subtypes of
aggression and found that they were slightly negatively correlated. One can interpret those findings by considering the overlap between the subtypes of aggression as representing aggression; reactive and proactive aggression are similar in that they can take the form of hitting, name calling, gossiping, and the like. However, the function of aggression subtypes differs; reactive aggression is defense driven, and proactive aggression is goal driven. Those functions likely are captured by the unique variance in each subtype of aggression, and if so, it makes sense that the unique indexes of reactive and proactive aggression would be unrelated.

As our second goal, we examined the short-term consistency across two time points of the differential concurrent relations of reactive and proactive aggression to four correlates. At each time point, reactive aggression showed consistent positive relations to hyperactivity and anger expression, and consistent negative relations showed consistent positive relations to social skills. The fact that those correlates related consistently to reactive aggression, but not to proactive aggression, supports previous concurrent research (Day et al., 1992; Dodge & Coie, 1987; Hubbard et al., 2002; Price & Dodge, 1989; Waschbusch et al., 1998) and suggests that subtypes of aggression represent distinct constructs driven by different mechanisms (Cronbach, 1951).

The consistent findings for hyperactivity, social skills, and anger expression emerged with a sample of only 57 children. Those effects were likely a result of the strength of the relations and our comprehensive assessment with four sources of data. The generalizability of the findings is limited by the fact that highly aggressive children were overrepresented in our sample. However, the relations between reactive aggression and the correlates that we obtained are consistent with previous research.

Findings for depressive symptoms were not as consistent as were the findings for hyperactivity, social skills, and anger expression; reactive aggression related positively to depressive symptoms at Time 1, but not at Time 2. Furthermore, proactive aggression did not relate to any correlates at any time point, except for a negative relation between proactive aggression and depressive symptoms at Time 1. Those findings are more difficult to explain than are the consistent findings for the other correlates. The findings for Time 1 are consistent with previous results in which researchers found a positive relation between reactive aggression and depressive symptoms in concurrent studies (Day et al., 1992) and in longitudinal studies (Dodge et al., 1997; Vitaro et al., 2002). However, those strong relations were not evident at Time 2; we did not expect the discrepancy in those findings across time. We are not sure how to interpret the inconsistent findings, given that we used the same sample and the same measures at both time points, and given that the three constructs demonstrated strong temporal stability. Clearly, researchers need to clarify the strength and consistency of the relation between depressive symptoms and the subtypes of aggression.

Additional longitudinal work on the subtypes of aggression is needed. Ideally, researchers should assess subtypes of aggression and a wider range of
correlates for a larger sample of children over a longer time span than 1 year. Theory and limited empirical data suggest that differential etiologies and outcomes are related to the subtypes of aggression. Theory suggests that reactive aggression grows out of earlier physical abuse and harsh parenting, whereas proactive aggression results from earlier exposure to aggressive models. To date, Dodge et al. (1997) are the only researchers who supported the first half of that hypothesis. Furthermore, theory and more robust data suggest that reactive aggression is related to the later outcomes of depression and dating violence, whereas proactive aggression is related to later delinquency (Brendgen et al., 2001; Dodge, 1991; Dodge et al., 1997; Vitaro & Brendgen, in press; Vitaro et al., 2002). Further longitudinal studies are needed in which researchers replicate our findings and consider additional factors in the unique etiologies and distinct outcomes associated with each subtype of aggression.

Future concurrent and longitudinal research should place particular emphasis on clarifying conflicting findings regarding proactive aggression. On one hand, and consistent with our findings, researchers have identified fewer correlates for proactive aggression than for reactive aggression. Moreover, several identified correlates are adaptive (leadership, supportive friendships). On the other hand, proactive aggression relates more strongly than does reactive aggression to later delinquency, an outcome of primary concern to society (Brendgen et al., 2001; Vitaro et al., 1998; Vitaro et al., 2002). Thus, much information remains to be learned about the mechanisms driving proactive aggression and its developmental course.

It is possible that the difficulty that those in the field of childhood aggression have experienced with identifying correlates of proactive aggression could be related to measurement issues. In this study, proactive aggression demonstrated lower internal consistency and weaker stability across time than did reactive aggression. Researchers should examine whether improving the measurement of the construct would yield more correlates of proactive aggression.

If clinical researchers continue to find support for the validity of the distinction between reactive and proactive aggression, they may determine the value of considering whether children’s aggression could be treated more effectively with separate interventions for each subtype of aggression. Differential interventions have been called for repeatedly (Brendgen et al., 2001; Crick & Dodge, 1996; Dodge, 1991; Dodge & Coie, 1987; Hubbard et al., 2002; Schwartz et al., 1998; Smithmyer et al., 2000; Vitaro & Brendgen, in press; Vitaro et al., 2002; Waschbusch et al., 1998). According to those recommendations, aggressive behavior may be decreased more effectively if the specific social cognitive, behavioral, social, and emotional underpinnings of each subtype of aggression are targeted separately.

For example, according to the literature, an intervention aimed at reactive aggression would emphasize (a) anger management, (b) hostile attributional bias reduction, (c) social problem solving, (d) improved peer relations and social skills, and (e) reductions in internalizing symptoms. In contrast, treatment for proactive aggression would
stress negative consequences of aggressive behavior, importance of social goals, and development of empathy. Given the high correlation between reactive aggression and proactive aggression, many aggressive children would benefit from both treatment packages. Even so, careful targeting of the mechanisms driving each subtype of aggression may enhance the efficacy of intervention efforts with aggressive children.

One must consider several limitations of the present study. First, this sample overrepresented aggressive children, so our findings may not generalize to samples of children with a more normal distribution of aggressive behavior. However, we believed that we needed to oversample for aggression to ensure that adequate levels of aggressive behavior were represented. Second, our results emerged from a second-grade sample and should not be generalized beyond this age group. We cannot know, for example, whether the subtypes of aggression would demonstrate the same level of stability at different developmental periods. Third, our results may vary by gender or by race and ethnicity. However, with a sample of only 57 children, we could not examine whether different findings emerged for boys and girls or for different racial and ethnic groups.

REFERENCES


Received January 30, 2006