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Developmental Trajectories of Peer-Reported Aggressive Behavior: The Role of Friendship Understanding, Friendship Quality, and Friends' Aggressive Behavior

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Abstract

Objective. To investigate developmental trajectories in peer-reported aggressive behavior across the transition from elementary-to-middle school, and whether aggressive behavior trajectories were associated with friendship quality, friends' aggressive behavior, and the ways in which children think about their friendships.

Method. Participants included a community sample of 230 5th grade children who were assessed when they made a transition from elementary-to-middle school (6th grade). Peer nominations were used to assess the target child's and friend's aggressive behavior. Self- and friend reports were used to measure friendship quality; friendship understanding was assessed via a structured interview.

Results. General Growth Mixture Modeling (GGMM) revealed three distinct trajectories of peer-reported aggressive behavior across the school transition: low-stable, decreasing, and increasing. Adolescents' understanding of friendship formation differentiated the decreasing from the low-stable aggressive behavior trajectories, and the understanding of friendship trust differentiated the increasing from the low-stable aggressive and decreasing aggressive behavior trajectories.

Conclusions. The findings indicated that a sophisticated understanding of friendship may serve as a protective factor for initially aggressive adolescents as they transition into middle school. Promoting a deepened understanding of friendship relations and their role in one's own and others' well-being may serve as an important prevention and intervention strategy to reduce aggressive behavior.

Keywords: aggressive behavior, developmental trajectories, friendship quality, friendship understanding, protective factors

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Aggressive behavior in childhood and early adolescence has been associated with a wide range of later negative outcomes, such as mental health problems, low academic achievement, and criminality in adulthood (Nagin, Barker, Lacourse, & Tremblay, 2008). As such, an understanding of the risk and protective factors underlying changes in aggressive behavior can help advance developmentally appropriate interventions. We suggest that friendships are important contexts for studying aggressive behaviour; depending on their quality and nature, friendships may either buffer children from, or exacerbate, aggressive behavior (Espelage, 2014). In the present study, we investigated social cognitions about friendships and friendship features as protective factors associated with trajectories of aggressive behavior during the transition from elementary-to -middle school (see Card & Hodges, 2006; Logis, Rodkin, Gest, & Ahn, 2013; Ojanen, Stratman, Card, & Little, 2013). Studying times of school transition is important because these periods are stressful; the transition from the familiar milieu of elementary school into larger, unfamiliar middle schools may be particularly challenging (Oh et al., 2008).

Our primary objectives were to identify trajectories of peer-nominated aggressive behaviors across the transition to middle school, along with investigating the possible protective effects of social cognitions about friendship (i.e., friendship understanding) and features of friendships (i.e., friendship quality, friend's aggression). While research suggests that social cognitions within a specific relationship context, such as friendship, can be powerful predictors of aggression (Peets, Hodges, & Salmivalli, 2010), it remains to be determined if, and how, variation in how children think about friendships relates to

their aggressive behavior trajectories. This is important because social cognitions about friendship and the quality of this relationship are likely to not affect children's concurrent and future behavior behavior within peer relations (Berndt & McCandless, 2009). Here, we use a social-cognitive developmental framework to study how children's social cognitions about friendship predict the development of their aggressive behavior.

Developmental Trajectories of Aggressive Behaviors

The present study focused on the development of children's overt aggression and links to friendship features. In the literature, overt aggressive behavior has been defined as behavior meant to intentionally harm others (Krahé, 2013). Researchers have examined the developmental trajectories of children involved in several forms of aggressive behaviors (for a comprehensive review, see Eisner & Malti, 2015).

The existing research suggests that there may be distinct trajectories of aggressive behaviors. Although one or two subgroups typically do not demonstrate serious difficulty and are not at an increased risk for later maladjustment or criminal behavior, there is usually a very small group (i.e., 2-5%) whose aggressive behavior problems are consistently high throughout development and a declining group whose aggressive behavior problems start at a high level but decrease over time, among the remaining children (i.e., 6-10%, e.g. Malti, Averdijk, Ribeaud, Rotenberg, & Eisner, 2013; see Espelage, Basile, de La Rue, & Hamburger, 2014). Studies have also identified a group whose aggressive behaviors start low but increase throughout elementary and middle school (e.g., Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). In summary, several researchers have found distinct courses of aggression (Jennings & Reingle, 2012). However, the number and shape of trajectories varies significantly across studies.

Friendship Quality, Friend's Characteristics, and Aggression Trajectories

From a social-ecological perspective, friendships are important social contexts for the development of aggression (Espelage, 2014). On the one hand, it has been suggested that friends who are similarly aggressive may reinforce each other's aggressive behaviors (Dishion & Dodge, 2009), and aggressive children tend to have friends with similar levels of aggression (Espelage, Green, & Wasserman, 2007). Friendships, particularly high quality friendships, may, on the other hand, yield emotional and social benefits (Hodges, Malone, & Perry, 1997). Specifically, certain dimensions of friendship, such as care and support, may serve as protective factors and help children with aggressive behavior problems overcome these problems (Rodkin & Hodges, 2003). Recent research suggests that friendship quality is related to moral development (McDonald, Malti, Killen, & Rubin, 2014; Malti & Buchmann, 2010).

Beyond friendship quality, the behavior of children's friends may relate to children's aggression trajectories over time. Studies have supported the similarity of friends on behavioral characteristics such as aggression (McDonald et al., 2013). Furthermore, if children have friendships with peers who are aggressive, their own aggressive behaviors may remain stable or increase over time (e.g., Adams, Bukowski, & Bagwell, 2005). However, peer influence may also be positive. For example, aggressive children who maintain friendships with non-aggressive peers show decreased aggressive behavior at a later time (Warman & Cohen, 2000).

Friendship Understanding and Aggression Trajectories

To date, few researchers have investigated whether children's understanding of the construct of friendship relates to aggressive behavior over time. Instead, in extant

research on the relations between social cognition and aggressive behavior, researchers have reported deficits in social information processes (Crick & Dodge, 1994). Social information processing (*SIP*) models have been used to understand the manner in which individuals assign meaning to social cues, generate or access strategies, and evaluate and select strategies to resolve interpersonal problems. Putatively, each step in the processing of social information can be isolated, biases can be identified, and these biases can be linked with specific behavioral patterns (Lemerise & Arsenio, 2000). For example, aggressive children have been found to attribute hostile intent to peers, to express feelings of anger, and to select aggressive strategies to resolve hypothetical interpersonal difficulties (e.g., Burgess, Wojslawowicz, et al., 2006; Lansford, Malone, Dodge, Pettit, & Bates, 2010; McDonald & Lochman, 2012). Hence, we hypothesized that social cognitions about the relational construct of friendship would predict trajectories of aggressive behavior over time. Specifically, we investigated if friendship understanding could buffer youth from high or increasing aggressive behavior.

The developmental nature of friendship understanding has been examined in a number of studies. In the cognitive–developmental tradition, the understanding of friendship is defined by a developmental sequence (Gummerum & Keller, 2008). Selman (1980) described five developmental levels, each of which entails a different perception of friendship relationships. With development, children gain a more mature understanding of: (a) the psychological nature of friendship; (b) the interdependency between friends; (c) the coordination of social perspectives; and (d) mutual respect for each other's viewpoint. A mature understanding of friendship has been implicated as imperative for socially adaptive behavior (e.g., Fredstrom, Rose-Krasnor, Campbell,

Rubin, & Booth-LaForce, 2012).

Cross-sectional research indicates that children with aggressive behavior problems are less mature in their understanding of the friend relationship than their non-aggressive age-mates (Malti & Keller, 2009). For example, a less sophisticated understanding of trust within friendship may relate to negative interpersonal behaviors, as it prevents reliance on friends and promotes mistrust of others, self-reliance, and self-concern. Thus, we suggest that children who have a relatively immature understanding of friendship will show increasing aggressive behavior across the transition to middle school. Alternatively, children who are initially higher on aggressive behavior but who show a more mature understanding of friendship may be more resilient during this school transition, and subsequently, demonstrate a decrease in their aggressive behaviors over time.

The Present Study

In summary, our study had two overt aims: 1) To identify distinct trajectories of aggressive behavior. We had no particular expectation about the number and shape of trajectories, although we did expect that we would identify one group that was consistently low on aggressive behavior, as this has been shown across various trajectory studies (for a review, see Eisner & Malti, 2015). Because our sample consisted of a targeted group of adolescents who showed high levels of aggression, high levels of withdrawn behavior, or low levels on both types of behaviors, we expected that number and shape of trajectories might differ from findings that were previously reported for random community samples. 2) To determine the role of friendship understanding and friendship quality as protective factors in the development of aggression. In line with

social-cognitive developmental theory, we predicted that friendship understanding would differentiate low-stable versus increasing aggression trajectories (Malti & Keller, 2009). We also hypothesized that aggression trajectories would demonstrate a declining pattern if children experienced a supportive, trusting friendship with a best friend. In contrast, if they had a low-quality friendship, and/or if they were friends with an aggressive peer, their initial aggression was expected to increase over time.

Methods

Participants

Participants were drawn from a sample (N = 1,139; 569 male) of adolescents participating in a longitudinal study about friendships across school transitions. Participants attended public elementary schools and middle schools in the Washington D.C. Metropolitan Area that served economically diverse communities; 6% to 86% (M = 39%, SD = 30.82) of students in the schools received free or reduced price lunches. Written permission to participate was received from parents (consent rate in 5th and 6th grade was 84%).

At Time 1 (i.e., the fall of 5th grade), a smaller sample of the adolescents was invited to visit a laboratory at a public university to complete an additional battery of questionnaires and interviews, including those pertaining to friendship quality and the understanding of the friend relationship. These youth were recruited based on information collected with the larger sample. Participants for the lab study were identified if they had a reciprocated best friend and based on Extended Class Play (*ECP*; Wojslawowicz Bowker, Rubin, et al., 2006) nominations of aggression or anxious withdrawal. For further details on the ECP, please see a description of the aggression measure below. For

the purposes of the larger study, three groups were recruited: a group high on withdrawn behavior (top 33% on anxious withdrawal and bottom 50% on aggression), a group high on aggressive behavior (top 33% on aggression and bottom 50% on anxious withdrawal), and a group low on both behaviors (bottom 50% on both anxious withdrawal and aggression) (Rubin et al., 2006). These groups were recruited because of the researchers' interest in comparisons between socially withdrawn and aggressive children in relation to their friendship and peer relations. These targeted adolescents were invited to the laboratory with their mutually-recognized best friend, who could vary in their level of anxious withdrawal and/or aggression. These procedures were similar to those used in previous studies (e.g., Rubin et al., 2006).

The laboratory sample, which included target children and their best friends, comprised 268 children (128 male) with a mean age of 10.34 years (*SD* = .53) at T1 (sociometric data were also collected at Time 2 (T2; i.e., in the spring of 5th grade), Time 3 (T3; i.e., the fall of 6th grade), and Time 4 (T4; i.e., the spring of 6th grade). Of this sample of 5th graders, 54.9% were European American, 13.4% were African American, 15.7% were Asian American, 8.6% were Latin American, and 7.5% were bi- or multi-racial. This sample was similar in race/ethnicity to that of the larger sociometric sample. In addition, our preliminary analysis indicated no significant differences in aggression between our sample and the larger sociometric sample on aggression, $t = -.93$, $p = .35$, or withdrawn behavior, $t = -.82$, $p = .41$. Of the 268 initial participants, 232 children were included in the final data analyses. Thirty-six participants were eliminated from this sample because they were missing at least two time points of behavioral nomination data (attrition rate: 13%). Two additional children were eliminated due to outlier values in

aggression (i.e., both had exceptionally high and stable aggression values), thus resulting in a final sample size of 230 (53% girls). Eliminated participants did not differ from the remaining participants on gender (χ^2 = .09, p = .77), age (t = .70, p = .49), or ethnicity (χ^2 = 5.05, p = .54).

Procedure

,The large sample of participants completed behavioral nominations and friendship nominations in group-administered sessions in their classrooms from T1-T4 (i.e., during the fall and spring semesters of the 5th and 6th grades). Additionally, between T1 and T2 data collection sessions, the smaller sample of 268 participants visited the research laboratory to complete measures about perceived friendship quality with a best friend and an interview about their friendship understanding.

Measures

Peer nominations of aggressive behavior. The larger sample of participants completed an extended version of the Revised Class Play to assess behavior (*ECP*; Wojslawowicz Bowker et al., 2006). The ECP measure has been found to be both valid and reliable using the large normative sample of 5th and 6th grade children across four time points (Burgess, Rubin, Wojslawowicz, Rose-Krasnor, & Booth, 2003). For example, ECP scores have been found to predict social information processing with peers (Burgess, Wojslawowicz, et al., 2006), the stability and fluidity of friendships (Wojslawowicz Bowker et al., 2006), and friendship quality (McDonald, Wang, Menzer, Rubin, & Booth-LaForce, 2011).

Participants were asked to pretend to be the directors of a class play and nominate classmates for various roles. In 5th grade, children were instructed to nominate one boy

and one girl in their classroom for each role. Because the number of classmates increases in middle school, 6th grade participants were asked to nominate up to three same-sex and three opposite-sex peers in their grade. In 5th grade, participants were drawn from 39 different classrooms (average nominating group size of $M = 21.21$, $SD = 4.04$, range = 8 - 27) and in 6th grade, participants were drawn from nine different middle school cohorts (average nominating group size of $M = 134.56$, $SD = 72.81$, range = 86 - 272). In all grades, only nominations for participating children were considered and to account for sex role biases, only same-sex nominations were used. All item scores were standardized within-sex and within-classroom (5th grade) or within-grade (6th grade) to adjust for the number of nominations received and the number of nominators. Of relevance to this study, seven items on the *ECP* assessed forms of aggression, disruptive and dominant behaviors, and unregulated behaviors (e.g., someone who picks on other kids; someone who gets into fights; someone who spreads rumors; someone who teases others; someone who interrupts others; someone who is bossy; someone who loses their temper easily). Exploratory principal components factor analysis with varimax rotation reported elsewhere (Wojslawowicz Bowker et al., 2006) found that these seven items loaded on one factor. Thus, we grouped these items to form an aggression/disruption behavior score. The standardized item scores were averaged together to yield a score for each participant at each time point. Cronbach's αs for the aggression scale in this sample were .92 at T1, .89 at T2, .93 at T3, and .94 at T4.

Mutual friendships. Participants were asked to write the names of their "very best friend" and their "second best friend" in their grade. Children could only name same-sex friends. Children were considered "best friends" if they were each other's very best or

second best friend choice (Parker & Asher, 1993). As only participants with parent permission completed nominations, it was not possible to assess whether friendships were reciprocated if nominations included children who were not participating. Thus, only identifiable and mutual friendships were considered. Adolescents were invited to the laboratory with one of their mutually-recognized friends. Initial invitations were made to the "very best" friend; however, in the rare cases in which this friend was unavailable, a "second best" friend was invited instead. If a targeted child had two mutual school-based best friendships, the child was invited to visit with his or her "very best friend" choice. This method of identifying friendships is similar to procedures used in other studies focused on best friendships (e.g., Bukowski, Hoza, & Boivin, 1994; Parker & Asher, 1993). Children with mutual friends identified in this manner are less lonely (Parker & Asher, 1993) and friendships that are identified as mutual are higher in quality than friendships that are identified in a unilateral manner (Bukowski et al., 1994).

Friend's aggressive behaviors. Using information from the ECP nominations of aggression and the friendship nominations, the aggression of the reciprocated (mutually-recognized) friend was also used in analyses.

Friendship quality. At T1, the *Friendship Quality Questionnaire Revised* (*FQQ*; Parker & Asher, 1993) was administered during laboratory visits in 5th grade to both children and their reciprocated best friend. The questionnaire has 40 items that participants rated on a scale of 1 ("not at all true") to 5 ("really true"). Items fall into one of six subscales: (1) companionship and recreation (e.g., "_ and I always pick each other as partners"); (2) validation and caring (e.g., "_ and I make each other feel important and special"); (3) help and guidance (e.g., "__ often helps me with things so I can get done

quicker"); (4) intimate disclosure (e.g., "_ and I are always telling each other about our problems"); (5) the absence of conflict and betrayal (e.g., reverse scored " _ and I get mad at each other a lot"); and (6) conflict resolution (e.g., "If _ and I get mad at each other, we always talk about how to get over it"). All items were averaged to create a Total Positive Friendship Quality scale (α = .93). This scale has been shown to be valid as it relates to child peer acceptance and loneliness (Parker & Asher, 1993). Both the adolescent and friend reports of friendship quality were used in analyses.

Friendship understanding. At T1, each participant responded to a modified version of Selman's *Friendship Conception Interview* (Fredstrom et al., 2012; Selman, 1980). Children's responses to this interview have been related to their age and to their behaviors, like social withdrawal and aggression (Bigelow, 1977; Fredstrom et al., 2012; Gurucharri, Phelps, & Selman, 1984; Selman, 1980). The interviewer read children a story about two friends whose friendship was threatened by a new child who was attempting to befriend one of them. Following the story, children were asked a series of questions in order to elicit responses about the child's friendship understanding in the following domains: *Friendship formation* (e.g., Why does a person need a good friend? How could ---- (the story characters) go about making friends?), *closeness and intimacy (*e.g., What is a really good close friendship? What makes a good close friendship last?), *trust and reciprocity* (e.g., What do friends do for each other? Do you think trust is important for a good friendship? What is trust anyway?), *conflict resolution* (What kinds of things do good friends, like ---- (the story characters) sometimes argue or fight about? Is it possible for people to be friends even if they're having arguments?), and *friendship*

termination (e.g., What makes friendships break up? Why do good friends sometimes grow apart?).

Multiple questions were used to address each domain. Each response within a domain was coded into one of five developmental levels (Selman, 1980). Examples of reasoning used at each level and for each domain follow: *Level 0* - Momentary physical interaction (a friend is someone in the physical proximity, who is superficially similar, and when conflicts arise, they are resolved through physical separation or one conflict ends friendship); *Level 1* - One-way assistance (a friend provides assistance, conflicts are resolved by appealing to another perspective); *Level 2* - Fair-weather cooperation (friends are equals and share secrets, resolve conflicts to make both people happy, friendships end when people have irresolvable differences); *Level 3* - Intimate, mutual sharing (friends provide companionship and intimacy, conflicts can strengthen friendships); and *Level 4* -- Autonomous interdependence (friends respect each other, provide reciprocal emotional and psychological support, conflicts are resolved through communication, friendships can end when individuals grow apart). All responses within each domain were coded and the average developmental level score for each of the five friendship domains (i.e., formation, closeness, trust, conflict resolution, and termination) was computed. Therefore, five level scores were computed in total. The training was based on Selman's interview manual (Schultz, Yeates, & Selman, 1989) and was conducted by one of the paper's authors. Data were coded by the author and one research assistant until the two coders achieved satisfactory reliability. Once they were reliable, they randomly selected 20% of the transcripts and independently coded them to assess reliability, percentage agreement = 83%; $\kappa = .72$, $z = 18.95$, $p < .001$.

Results

Analytic Strategy

A General Growth Mixture Model was employed to identify trajectories of aggressive behavior. Next, logistic regression analyses were utilized to predict group membership by Time 1 covariates. Data analysis was conducted using Mplus Version 6.12 (Muthén & Muthén, 2010). Missing data were handled by full-information maximum-likelihood (FIML) estimation with the assumption that data are missing at random (MAR). Partial data on the trajectory variable, but not missing data on predictor variables, was allowed. Our final sample size of 230 is consistent with the recommendation that there must be a minimum of 200 cases for simple growth models (Stull, 2008). The data analyses proceeded in two steps. First, we identified the best fitting trajectory model. Second, we compared the trajectory groups to examine whether adolescents in these groups differed on their understanding of friendship and the characteristics of their friendships.

Trajectories of Aggressive Behavior

Our first research goal was to identify differential trajectories of aggressive behavior. Model testing was used to determine growth patterns of aggressive behaviors, the number of distinct group trajectories, and the relations with covariates. To evaluate which model best fit the growth pattern for the whole sample, intercept-only, intercept + linear, and intercept + linear + nonlinear growth models were fit to the data. The intercept + linear growth model was selected as the baseline model, given that it appeared to provide the most parsimonious fit to the data. During the estimation of mixture models, 500 different random start values were initiated to ensure that maximum likelihood (ML)

estimation searched for a global maximum solution. Based on the intercept + linear growth model, models with different numbers of latent groups were compared to evaluate which model provided the best fit to the data. The intercept and slope residuals were fixed at zero. We estimated fit indices for one to four groups. In order to find the optimal number of trajectories, the variances of the continuous growth factors and the covariance between the growth factors were initially set to zero. Because a model with *k* different numbers of groups is not nested within a *k* + 1 group model, the Bayesian Information Criterion (*BIC*) is used as a basis for selecting the optimal model, as it can be used for comparison of both nested and unnested models. The model fit improved when groups were included (*BIC*), i.e. BIC = 2026.68 for one-group model, BIC = 1610.27 for two-group model, BIC = 1470.05 for three-group model, and BIC = 1391.67b for four-group model. However, entropy decreased with increasing number of classes (i.e., two-group model: 0.98, three-group mdoel: 0.96, four-group model: 0.92), and the Lo-Mendell-Rubin (*LMR*) likelihood ratio test of model fit indicated that the increment of estimate from a model with two groups to a model with three or four groups was not significant. As the four-factor solution also yielded very small sample sizes in two of the trajectories, the model with three developmental trajectories was chosen as optimal in that it best balanced goodness-of-fit and parsimony.

The three-group model identified three distinct trajectories for aggressive behavior across the transition from elementary to middle school: the first group of children (80%, *n* = 185), labeled as low-stable, showed consistently low aggressive behavior over time; the second group (15%, *n* = 35), labeled as the decreasing group, showed decreasing aggressive behavior over time; and the third group (4%, *n* = 10), labeled as the increasing

group, showed an increase in aggressive behavior over time. There were no sex differences in any of the three trajectory groups. The intercept and slopes for each of the trajectories were as follows: low-stable aggressive behavior, Intercept = -0.37, *SE* = 0.03, $p < .001$, linear slope = 0.04, *SE* = 0.01, $p < .01$; decreasing group, Intercept = 1.23, *SE* = 0.21, $p < .001$, linear slope = -0.23, *SE* = 0.10, $p < .05$; increasing group, Intercept = 0.83, *SE* = 0.43, $p < .05$, linear slope = 1.10, *SE* = 0.18, $p < .001$.

Links between Friendship Factors and Trajectories of Aggressive Behavior

Next, we tested our hypothesis regarding the role of friendship variables in trajectories of aggressive behavior. The descriptive statistics and correlations among the study variables are displayed in Tables 1 and 2, respectively. The latent group descriptive statistics of the friendship covariates included in the analysis across the three trajectory groups are displayed in Table 3. Preliminary analysis indicated no effects of SES, and therefore SES was not considered in the final analysis. A series of multinomial logistic regression analyses was conducted to examine the prediction of aggressive behavior trajectory group membership by each friendship covariate. Multinomial logistic regression is used to predict a categorical dependent variable (i.e., group membership) by independent variables. For our analyses, a separate multinomial logistic regression model was run for each of the five friendship understanding predictors. The friendship characteristic variables were entered with each of the respective friendship understanding variables simultaneously into the equation to examine whether children with elevated scores on the respective friendship understanding covariate and/or friendship characteristics covariates were overrepresented in specific trajectory groups. Because the

dependent variable consisted of three categories, the log odds of membership were calculated relative to the low-stable aggression group (see Table 4).

First, in comparing the low-stable group with the increasing and decreasing groups, two aspects of friendship understanding were significant predictors of aggressive trajectory group membership. Specifically, children who had a more sophisticated understanding of friendship formation were more likely to be overrepresented among the decreasing aggressive behavior group compared to the low-stable group, and children who had a more mature understanding of trust were underrepresented in the increasing group compared to the low-stable group. Next, we compared the increasing and decreasing aggressive behavior trajectory groups. Binary logistic regression models were run to conduct these comparisons. The understanding of trust within friendship significantly differentiated the groups. Specifically, children in the decreasing aggressive behavior trajectory group had a more sophisticated understanding of trust within friendships than children in the increasing aggressive behavior trajectory group. In sum, we found that the domains of friendship formation and trust predicted differences in aggression trajectories. In contrast, neither friend's aggressive behavior nor self- or friend-reported friendship quality predicted aggressive trajectory group membership.

Discussion

The aim of the present study was to examine trajectories of aggressive behavior in middle childhood, and the role of friendship understanding and friendship characteristics on trajectories of aggressive behavior. Drawing on social-cognitive developmental models (Rubin, Malti & McDonald, 2012), we hypothesized that both friendship understanding as well as friendship characteristics would predict distinct trajectories of

aggressive behavior. Our findings revealed partial evidence for direct effects of friendship understanding on subsequent aggression trajectories. In accord with other trajectory research on aggression, we found the majority of children to be consistently low in aggression. We also found smaller groups who decreased in aggression or increased in aggression over the middle school transition. This is consistent with other studies, which have found that only a small fraction of youth show consistently high aggressive behavior over adolescence (e.g., Pepler, Craig, Jiang, & Connolly, 2008).

Our study supports the hypothesis that a sophisticated understanding of friendship may serve as a form of resiliency for initially aggressive adolescents as they transition to middle school (see Malti & Keller, 2009). Adolescents in the decreasing trajectory group reported a more sophisticated understanding of friendship formation and closeness compared to the low stable group. The decreasing group also had a more sophisticated understanding of friendship trust than the increasing group. Hence, having a nuanced understanding of how to make friends, be intimate and close with friends, and establish trust and reciprocity may help protect initially at-risk children from continued aggressive behavior over time (see Rotenberg, Boulton, & Fox, 2005). Youth with a sophisticated understanding of friendship may be better able to make new friends during the transition to middle school when there is great opportunity to meet new peers and form new relationships. These initially aggressive youth may flourish with new friends and demonstrate more socially adaptive behaviors (i.e., less aggressive behavior) in this new context. These findings are also in line with research showing that diverse aggressive behavior trajectories in adolescence differ by social cognitions in the moral domain. For example, adolescents with high levels of moral disengagement are more likely to increase

their aggressive behavior over time (Paciello, Fida, Tramontano, Lupinet, & Caprara, 2008). It also supports the assumption that a more differentiated social understanding of friendship may protect children from developing aggressive behaviors.

Adolescents in the increasing trajectory group had a less sophisticated understanding of trust and reciprocity within friendship compared to both other comparison groups. This finding is of key importance, as trust is a basic psychological mechanism which helps to establish and maintain a child's positive social reputation and constructive social interactions (Malti et al., 2013). Trust furthers intimacy within relationships; without mutual trust between interaction partners, psychological distance is maintained. Thus, when youth do not understand the importance of trust within friendships, their friendships might be characterized lack social support. A group of initially aggressive youth who do not understand the significance of trust for positive friendship relations may be likely to remain aggressive over time; this may occur because they cannot understand the meaning of trust in friendship when social crises occur.

Interestingly, friendship characteristics (i.e., self- and friend-reported friendship quality, friend's aggression) did not differentiate the trajectory groups. Given the findings from other studies, we assumed that social interactions between aggressive friends may prevent the development of adaptive behavior (Marsh et al., 2004). However, friendship quality may affect social behavior but that it may be mediated through social cognitions; that is, children who have negative friendship experiences increase in aggression because their trust in others is "damaged" (Rotenberg et al., 2005). Although we could not test these mediational pathways, future research investigating if and how social schemas influenced by friendship affect later aggression is warranted.

Limitations

The present study was not without limitations. First, we only took the behavior of one mutual best friend into account and did not control for previous victimization experiences which may have affected friendship quality and understanding. Second, we did not find a high-stable aggression group. This finding might be due to sample size restrictions. Third, aggressive children do not always have mutually nominated friends in their schools, and our analysis was limited to aggressive children with at least one mutually nominated friend, and aggression did predict the existence of a mutual best friendship in 5th grade in the larger sample. Nevertheless, previous analysis of our data did not find a relation between aggression and having a best friendship in 6th grade (i.e., the 1st year of middle school; McDonald et al., 2011). Lastly, we did not include social network analysis because of our focus on dyadic friendship relationships.

Research Implications

The present study investigated how friendship understanding and friendship characteristics contribute to diverse trajectories of aggressive problem behaviors during a critical period of transition, i.e., from elementary to middle school, which are particularly stressful times (Oh et al., 2008). The findings provide new insights into how a more sophisticated understanding of friendship formation and trust in friendship relationships in elementary school serves as a protective factor in the development of aggression during the transition from the elementary to middle school years. There are several interesting venues for future research that would extend our findings: First, as previous research has shown that social cognitions sometimes relate differentially to subtypes of aggression (Crick, Grotpeter, & Bigbee, 2002), in future studies, it would be beneficial to

investigate how, and whether, friendship understanding relates to different subtypes of aggressive behavior. Longitudinal studies on the developmental relations between victimization, friendship quality, and aggression may further elucidate the causal links between children's developing friendship relationships and social behavior. In the future, researchers may also want to examine the aggressive behavior of a larger group of the child's friends, as the characteristics of a child's clique and the larger peer network may influence behavior (Kwon & Lease, 2009).

Clinical and Policy Implications

Our findings support the view that prevention and intervention programs that utilize friendship and peer relationships are central to prevent and reduce aggression (Espelage, 2014). Specifically, our findings point to the importance of children's understanding of friendship, and trust in close friendship relationships in potentially reducing aggression. Thus, intervention strategies that target trust and positive views about friends and peers may help aggressive children to develop more positive social behaviors towards peers more generally. Teachers and educators could use moral dilemma discussions in the friendship domain in the classroom to promote an understanding of friendship, empathy, and trust in friendships in age-appropriate, non-stigmatizing ways (Malti, 2010). In sum, our findings may inform existing preventative interventions that aim at reducing aggression in school settings (e.g., Espelage, & Poteat, 2012; Kärnä et al. 2011) as they suggest that systematically promoting adolescents' understanding of, and trust in, constructive and supportive friendship relationships may be a powerful tool in reducing aggressive behavior during the transition from elementary to middle school.

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Table 1

Descriptive Statistics for Study Variables (N = 230)

	Mean (SD)
Child Aggressive Behavior	
Aggressive behavior T1	-0.05 (0.71)
Aggressive behavior T2	-0.06 (0.68)
Aggressive behavior T3	0.04 (0.80)
Aggressive behavior T4	-0.02 (0.76)
Friendship Characteristics	
Friend's aggressive behavior T1	-0.07 (0.66)
Self- reported friendship quality T1	3.92 (0.67)
Friend-reported friendship quality T1	3.92 (0.65)
Friendship Understanding	
Formation T1	1.71 (0.36)
Closeness T1	2.15 (0.41)
Trust T1	1.93 (0.45)
Conflict resolution T1	1.94 (0.40)
Termination T1	2.11 (0.55)

Note. T1 = Time 1. T2 = Time 2. T3 = Time 3. T4 = Time 4.

Table 2

Correlation Matrix of Study Variables (N = 230)

Variable	1	2	3	4	5	6	7	8	9	10	11	1
1. Aggressive behavior T1	-											
2. Aggressive behavior T2	.80***	-										
3. Aggressive behavior T3	.56***	.58***	-									
4. Aggressive behavior T4	.47***	.55***	.79***	-								
5. Friend's aggressive behavior T1	.08	-.01	.06	.07	-							
6. Self- reported friendship quality T1	.04	-.04	.13*	.13	.05	-						
7. Friend- reported friendship quality T1	.05	.01	.07	.02	.12	.32***	-					
8. Friendship formation T1	.10	.08	.09	.02	-.13	.20**	.04	-				
9. Friendship closeness T1	.06	-.03	.01	-.04	.02	.23**	.05	.40***	-			
10. Friendship trust T1	-.03	-.09	-.10	-.15*	-.02	.09	-.02	.29***	.25***	-		
11. Friendship conflict resolution T1	.05	.00	.05	.01	-.05	.21**	.04	.22**	.28***	.27***	-	
12. Friendship termination T1	.07	-.05	-.01	-.03	-.11	.10	.08	.15*	.27***	.23**	.17*	

Note. T1 = Time 1. T2 = Time 2. T3 = Time 3. T4 = Time 4.
*$p < .05$. **$p < .01$. *** $p < .001$.

Table 3

Descriptive Statistics for Friendship Factors Across the Three Trajectory Groups

	Low-Stable	Decreasing	Increasing
	Mean (SD)/ %	Mean (SD)/ %	Mean (SD)/ %
Friendship Characteristics			
Friend's aggressive behavior	-0.09 (0.65)	-0.04 (0.75)	0.13 (.60)
Self- reported friendship quality	3.90 (0.68)	4.03 (0.64)	4.13 (0.47)
Friend-reported friendship quality	3.92 (0.67)	4.03 (0.55)	4.22 (0.59)
Friendship Understanding			
Formation	1.68 (0.35)	1.87 (0.34)	1.65 (0.34)
Closeness	2.13 (0.40)	2.30 (0.44)	2.04 (0.56)
Trust	1.93 (0.44)	2.02 (0.39)	1.54 (0.59)
Conflict resolution	1.94 (0.41)	1.94 (0.38)	1.99 (0.46)
Termination	2.11 (0.55)	2.17 (0.61)	2.00 (0.25)
Control Variables			
Gender (female)	52%	60%	50%

Table 4

Odds Ratios for Friendship Factors Predicting Group Membership

	Decreasing vs. Low-stable	Increasing vs. Low-stable	χ^2	Increasing vs. Decreasing	χ^2
Friendship characteristics					
Friend's aggressive behavior	1.11	1.50	0.82	0.32	0.38
Self-reported friendship quality	1.40	1.89	2.42	0.30	0.64
Friend-reported friendship quality	1.32	2.44	2.88	1.86	2.88
Friendship Understanding					
Formation	4.39**	0.73	7.48*	-2.03	2.78†
Closeness	2.84*	0.60	4.89†	-1.13	1.88
Trust	1.64	0.16*	7.95*	-2.41	5.37*
Conflict resolution	1.03	1.40	0.15	0.32	0.11
Termination	1.23	0.71	0.69	-0.53	0.63
Control Variables					
Gender (female)	0.72	1.06	0.82	-0.41	0.32

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