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Deflected Pathways: Becoming Aggressive, Socially Withdrawn, or Prosocial with Peers During the Transition to Adolescence

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Abstract

Although research has suggested strong continuity in children's adaptive or maladaptive behavior with peers across the transition to adolescence, less is known about deflected developmental pathways of peer social competence across this transition. This study investigates how mother-child and best friend relationship quality predict the deflection of youth from adaptive to maladaptive behavior with peers or the reverse. Using data from the NICHD Study of Early Child Care and Youth Development ($N=1055$), high-quality friendships were associated with changes in peer social competence from 3rd to 6th grade. More positive and fewer negative interactions with a friend were linked with becoming more prosocial with peers, whereas less positive interactions with a friend were linked to becoming aggressive or withdrawn.

Keywords

early adolescence; friendship; mother-child relationship; aggression; social withdrawal; prosocial

The ability to engage in competent social interactions with peers is one of the key developmental milestones of childhood and adolescence and failure to achieve this milestone places individuals at risk for maladaptive development. During both childhood and adolescence, the ability to engage in positive, prosocial behavior with peers is both a marker of current positive adaptation and a predictor of future successful development in academic, social, behavioral, and emotional domains (Burt, Obradovi , Long, & Masten, 2008; Kupersmidt & Patterson, 1991; Masten et al., 1995; Obradovic, van Dulmen, Yates, Carlson, & Egeland, 2006). Although research has suggested strong continuity in competent and less competent peer interactions from middle childhood across the transition to adolescence, much less is known about deflected developmental pathways (i.e., youth shifting from adaptive to maladaptive behavior with peers or shifting from maladaptive to adaptive behavior with peers). Elucidating developmental pathways in competent peer interactions across the transition from childhood to adolescence is especially important because

understanding why some individuals fare well during this developmental period and others do not may serve to inform our understanding of how to promote positive (and prevent negative) development in adolescence. This study examined the continuity and discontinuity of competent peer interactions across the transition to adolescence. In particular, we focused on children who became more or less prosocial, aggressive, or withdrawn with peers across this developmental transition and tested how changes in socio-contextual factors (quality of relationships with mother and best friend) during this same developmental period contributed to these patterns.

Developmental Continuity of Facets of Peer Interactions

Competent social interaction, by definition, is a dynamic construct, requiring increasingly complex skills as youth progress through childhood and into adolescence. Multiple theoretical orientations suggest that a key developmental milestone of middle childhood is to develop social competence with peers (Erikson, 1950; Sroufe, Egeland, Carlson, & Collins, 2009; Sullivan, 1953). There are a number of different approaches to the study of child behavior with peers, with some lines of research focusing on adaptive behavior (social competence, social skills) and other longitudinal studies focusing on maladaptive behavior (aggressive behavior, withdrawn behavior, peer victimization). Across these lines of research, evidence is robust that there is strong continuity in patterns of adaptive and maladaptive behavior with peers across childhood and adolescence, with children who demonstrate the highest competence in childhood continuing to demonstrate the highest competence in later periods and vice versa. For example, studies that have focused on general social skills indicators suggest relatively strong developmental continuity in adaptive behavior with peers from childhood to adolescence (Bornstein, Hahn, & Haynes, 2010; Burt et al., 2008; Monahan & Steinberg, 2011; Murphy, Shepard, Eisenberg, & Fabes, 2004). Other studies that have focused on less adaptive behavior with peers, such as aggressive behavior, peer victimization, or withdrawn behavior, have found similar patterns of developmental continuity over time for aggression (Broidy, Nagin, Tremblay, Bates, & Brame, 2003; Campbell, Spieker, Vandergrift, Belsky, & Burchinal, 2010; Cleverley, Szatmari, Vaillancourt, Boyle, & Lipman, 2012; NICHD Early Child Care Research Network & Arsenio, 2004; Odgers et al., 2008; Schaeffer et al., 2006; Shaw, Gilliom, Ingoldsby, & Nagin, 2003) and social withdrawal (Booth-LaForce & Oxford, 2008; Gazelle & Ladd, 2003; Oh et al., 2008).

Yet across the body of literature on children's interactions with peers, studies are limited in that they fail to paint a picture of the entire range of children's and adolescents' adaptive and maladaptive behavior with peers. Research tends to focus on one dimension of peer interactions (prosocial or skilled peer behavior, aggressive behavior, withdrawn behavior, victimization, and prosocial behavior) and not how these dimensions of different behaviors towards peers – both adaptive and maladaptive – may co-occur within the person. Studies that have examined multiple facets of a child's peer relationships, such as prosocial behavior, withdrawal, and aggression, have looked at each variable independently, rather than an examination of the whole profile of a child's friendships (Proulx & Poulin, 2013). Moreover, no studies have focused specifically on developmental discontinuity in behavior with peers from childhood to adolescence. Indeed, whereas continuity in developmental trajectories of

a single dimension of peer-directed behavior is generally high, it is not perfect, and it is unknown how simultaneously examining both adaptive and maladaptive patterns of peer-directed behavior may inform the study of developmental continuity of social competence with peers. Understanding the factors that contribute to deflected developmental pathways for adaptive and maladaptive peer behavior may help identify mechanisms of theoretical importance and targets for intervention efforts to promote positive developmental outcomes among youth across the transition to adolescence.

(Dis)continuity of Peer Interactions and Mother-Child Relationship Quality and Friendships

Some have argued that continuity in behavioral adaptation that is frequently observed in developmental research is due to continuity in the environment (Sroufe et al., 2009) and, as such, it may be that changing features of the environment may determine patterns of developmental deflection from childhood to adolescence. That is, declines in the quality of the environment may contribute to a shift to maladaptive patterns of behavior with peers whereas increases in environmental quality may contribute to more positive patterns. Whereas it is likely that changes in behavior may also alter the environment that children experience, theoretically a change in environment or context is believed to underlie subsequent changes in behavior (Sroufe et al., 2009). Although it is likely that many different contextual factors could impact the deflection of developmental pathways, a primary candidate is the quality of close relationships, specifically, the child's relationship with the mother and with the best friend. Support from both close family members and a close friend predicts positive adjustment in the transition to adolescence (Levitt et al., 2005; Sentse, Lindenberg, Omvlee, Ormel, & Veenstra, 2010), and healthy relationships in both the parent and peer realms are viewed as essential for positive adolescent outcomes (Collins & Laursen, 2000). Thus, a high-quality association with a single individual – one's parent or best friend – may have implications for a child's behavior with his or her peers in general, both in childhood and across the transition to adolescence.

The sensitivity and responsivity of parents towards their child, in terms of supportive, warm, non-hostile behavior, appears to be particularly important for promoting children's prosocial behavior with peers and protecting against aggressive behavior, social withdrawal, and victimization by peers. For example, children with sensitive, responsive parents are more likely to exhibit prosocial behavior with peers (Attili, Vermigli, & Roazzi, 2010; Day & Padilla-Walker, 2009; Groh et al., 2014) and are less likely to be overtly aggressive with peers (Attili et al., 2010; Sroufe, Egeland, & Carlson, 1999), engage in less relational aggression with peers (Kawabata, Alink, Tseng, van Ijzendoorn, & Crick, 2011), and exhibit less socially withdrawn behavior (Booth-LaForce et al., 2012; Booth-LaForce & Oxford, 2008; Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006; van Brakel, Muris, Bögels, & Thomassen, 2006). Relatedly, children with mothers with prosocial emotional socialization strategies in early childhood have higher quality friendships in late childhood and adolescence (Blair et al., 2014). In addition to parental sensitivity, high quality parent-child relationships that strike a balance between encouraging adolescent independence and maintaining a supportive connection when needed are likely important

factors for promoting positive behavior with peers. Indeed, higher quality parenting during adolescence is linked with greater self-esteem, ego development, and social functioning in general (Allen, Hauser, Bell, & O'Connor, 1994a; Allen, Hauser, Eickholt, Bell, & O'Connor, 1994b; McElhaney & Allen, 2001; Yoo, Feng, & Day, 2013). Thus, during the transition from childhood to adolescence, sensitive and high-quality parenting may lay the groundwork for shifting youth to more positive patterns of behavior with peers. Alternatively, parents who have poorer sensitivity and a lower-quality relationship with their child may place the child at risk for developing less prosocial behavior with peers during the transition to adolescence.

In addition to the importance of the parent-child relationship for social functioning, the extant literature supports the importance of friendship quality during this developmental period for promoting positive adaptation with peers. In general, high quality friendships are marked by shared activities, emotional support, low levels of aggression, and, beginning in adolescence, intimate disclosure. Higher quality friendships are associated with better psychosocial functioning and adjustment during adolescence (Barry & Wentzel, 2006; Rubin, Bukowski, & Parker, 2006; Sentse et al., 2010; Waldrup, Malcolm, & Jensen-Campbell, 2008). In contrast, low quality friendships are associated with a number of different maladaptive peer interactions, including socially withdrawn behavior with peers (Rubin, Wojslawowicz, et al., 2006), aggressive behavior with peers (Lansford, Malone, Dodge, Pettit, & Bates, 2010), and being victimized by peers (Bagwell & Schmidt, 2011). Moreover, positive and negative aspects of peer relationships are associated with subsequent behavior with peers. For example, negative peer experiences, such as relationships marked by psychological control, are related to lower levels of prosocial behavior with peers, while more connected relationships with peers are related to more prosocial behavior with peers one year later (Padilla-Walker, Fraser, Black, & Bean, 2014). Although the quality of friendships during childhood and adolescence are markers of psychosocial functioning, it is notable that the nature of friendships changes in significant ways across the transition to adolescence. As such, it could be that changes in the quality of relationships with a best friend across the transition from childhood to adolescence may uniquely predict deflected developmental pathways of peer social competence across this transition (Güro lu, Cillessen, Haselager, & van Lieshout, 2012).

Methodological Challenges to the Study of Developmental Continuity

Although evidence suggests a supportive relationship with a parent or best friend may be important for understanding developmental continuity of adaptive or maladaptive behavior with peers across the transition to adolescence, studying predictors of continuity and discontinuity in developmental patterns poses a number of methodological challenges, foremost of which is the identification of individual differences. In general, most analytic approaches to studying development utilize a variable-centered approach, which examines patterns of change on average in populations or subgroups. Variability in average development can be estimated to assess individual differences. Covariates or predictors are assumed to have the same effect across the entire sample, although this assumption can be relaxed with the addition of interaction effects that allow the effect to vary across levels of another covariate. In contrast, person-centered analytic strategies identify individuals who

are similar to each other on a variable or variables of interest. Covariates are assumed to have different effects for different “types” of individuals (Magnusson, 2003). Although both analytic approaches are important for understanding patterns of human development, person-centered analytic techniques are particularly promising for examining discontinuity in development as it allows for the effects of covariates to vary across individuals or latent classes.

Another advantage to the application of person-centered analytic approaches to the study of developmental continuity is that it allows for examination of a broader array of variables (i.e., multivariate assessment of outcomes). For example, as mentioned previously, studies of continuity of behavior towards peers have tended to focus on single dimensions, such as prosocial behavior or aggressive behavior. Yet, all children likely exhibit both adaptive and maladaptive behaviors with peers. Studying an entire range of peer-directed behaviors, rather than focusing on one dimension, presents a more complete picture of developmental continuity. Traditional approaches to the study of developmental continuity, however, have not used approaches that enable a focus on multiple dimensions of an outcome measure at the same time. With the goal of presenting a more complete picture of how children's social competence with their peers changes from childhood to adolescence, we utilized a person-centered approach that enabled focus on multiple dimensions of peer-directed behaviors simultaneously. Ultimately, this approach allowed us to characterize individual differences and, at the same time, the entire range of adaptive and maladaptive behavior towards peers.

The Present Study

In the present study, we used a latent transition model to identify children and adolescents who exhibited similar patterns of adaptation or maladaptation with peers. We simultaneously investigated child and adolescent patterns of interactions with peers using a wide range of indicators of adaptive and maladaptive behavior: prosocial behavior, aggressive behavior (physical and relational), social withdrawal, peer exclusion, and victimization by peers in middle childhood (3rd grade) and early adolescence (6th grade). By examining this broad range of behaviors with peers, we gained greater understanding about the complete range of social behavior across the transition to adolescence. We identified individuals with similar patterns of behavior with peers at both points in development based on these variables and estimated the likelihood of individuals staying in the same latent class over time (continuity) or transitioning between latent classes (discontinuity). Subsequently, we tested how mother-child relationship quality and friendship quality contributed to deflected pathways of becoming more or less prosocial with peers across the transition to adolescence.

Method

Participants

The present sample was drawn from the NICHD Study of Early Child Care and Youth Development (<http://www.nichd.nih.gov/research/supported/Pages/seccyd.aspx>). Mothers and children were recruited by researchers visiting hospitals shortly after the birth of a child in ten U.S. locations (Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA;

Madison, WI). The full sample comprised 1,364 children. Twenty-four percent of children were non-White or Hispanic, 11% of the mothers had not completed high school, and 14% of the families were headed by a single mother. On average, mothers had 14.4 years of education and the average family income was 3.6 times the poverty level.

The present analyses used data from middle childhood (Grade 3; mean age = 9.15 years, SD = 0.31) to early adolescence (Grade 6; mean age = 12.17 years, SD = 0.31), including mother-child observations and mother and teacher reports. There is one exception to a focus on 3rd and 6th grade data. Mother-child observations of maternal sensitivity occurred in Grades 3 and 5. Consequently, the 5th grade assessment of maternal sensitivity was used in the current paper. The analysis sample ($n = 1055$; 52% female; 80% White) was limited to individuals with non-missing outcome data (teacher-rated peer-directed behavior) in Grades 3 and 6. All other missing data were dealt with via Full Information Maximum Likelihood. Compared with the full sample, those in the analysis sample were more likely to be male ($\chi^2 [1] = 3.90, p = .05$) and Black ($\chi^2 [4] = 10.01, p = .04$). Between Grades 5 and 6, 8% of males and 7% of females transitioned from a school where they were in the oldest grade to a school where they were in the youngest grade, indicating that these youth had most likely transitioned from an elementary school into a middle school.

Measures

Behavior with peers—Six teacher-report variables were used to assess the child's behavior with peers: prosocial behavior with peers, withdrawn behavior with peers, aggressive behavior with peers, exclusion by peers, peer victimization, and *relational aggression*. Scales were drawn from three measures: The Child Behavior Scale (Ladd & Profilet, 1996), the Peer Victimization Scale (Kochenderfer & Ladd, 1996), and the Relational Aggression Scale (Crick, 1996). Items from the three scales were administered in a single 43-item questionnaire that the child's primary teacher completed in 3rd and 6th grades (responses were on a 3-point scale from “Not true” to “Often true”). Different teachers reported in each grade.

The *Prosocial behavior with peers* scale consists of items indicating the degree to which the child is cooperative and kind toward peers (e.g., “Offers help or comfort when other children are upset”; 7 items; $\alpha_{\text{Grade3}} = .93$ and $\alpha_{\text{Grade6}} = .95$). *Withdrawn behavior with peers* refers to a child's tendency to play alone and keep peers at a distance (e.g., “Withdraws from peer activities”; 6 items; $\alpha_{\text{Grade3}} = .91$ and $\alpha_{\text{Grade6}} = .92$). *Aggressive behavior with peers* is the degree to which the child engages in overtly aggressive behavior (e.g., “Threatens other children”; 7 items; $\alpha_{\text{Grade3}} = .89$ and $\alpha_{\text{Grade6}} = .92$). *Exclusion by peers* reflects peer avoidance and ignoring (e.g., “Not chosen as playmate by peers”; 7 items; $\alpha_{\text{Grade3}} = .90$ and $\alpha_{\text{Grade6}} = .94$). *Peer victimization* is the extent to which a child is physically and emotionally victimized by peers (e.g., “Is hit or kicked by other children”; 6 items; $\alpha_{\text{Grade3}} = .89$ and $\alpha_{\text{Grade6}} = .92$) and *relational aggressive behavior* is the extent to which a child engages aggression that is specific to relationships (e.g., “Spreads rumors or gossips about some peers; 6 items; $\alpha_{\text{Grade3}} = .89$ and $\alpha_{\text{Grade6}} = .92$).

Mother-child relationship quality—Two measures of the quality of the mother-child relationship were used: *maternal sensitivity* and positive relationship with child. Maternal sensitivity was assessed based on videotaped observations of children and their mothers in Grades 3 and 5. Each of these tasks involved engagement of the mother and child in joint activities and discussion tasks (e.g., an errand planning task in Grade 3, discussing and attempting to resolve areas of disagreement in Grade 5). Sensitivity was operationalized in Grades 3 and 5 using scales measuring supportive presence, respect for autonomy, and hostility (reversed), which were composited ($\alpha = .80$ and $.85$ in 3rd and 5th grades, respectively; interrater reliabilities [intraclass correlations] were $.84$ and $.85$, respectively).

Positive relationship with child was assessed in Grades 3 and 6 using the Child-Parent Relationship Scale (Pianta, 1992). Mothers rated 15 items on a scale from 1 to 5 points (from 1 = “Definitely does not apply” to 5 = “Definitely applies”) reflecting the degree of closeness and lack of conflict in her relationship with her child (e.g., “I share an affectionate, warm relationship with my child”; “My child easily becomes angry at me”—reversed) ($\alpha = .80$ and $.85$ in 3rd and 6th grades respectively)

Friendship Quality—*Positive friend interactions* and *negative friend interactions* were assessed with the Quality of Classroom Friends measure (K. E. Clark & Ladd, 2000) in Grades 3 and 6. Teachers reported on a 4-point scale from “Strongly Disagree” to “Strongly Agree” on the quality of the child's relationship with a best friend in terms of positive interactions (12 items; $\alpha_{\text{Grade3}}=.88$ and $\alpha_{\text{Grade6}}=.87$; e.g., “The child and his or her best friend share readily with each other”) and negative interactions (8 items; $\alpha_{\text{Grade3}}=.86$ and $\alpha_{\text{Grade6}}=.85$; e.g., “The child and his or her very best friend get mad at each other a lot”).

Demographics—Four demographic variables were utilized as covariates in analyses: sex (Male vs. Female), ethnicity (White-non Hispanic vs. not), whether a father was living in the home in the 3rd grade, and the income-to-needs ratio at the 3rd grade for children's families based on US Census Bureau tables as the ratio of family income to the poverty threshold for each household size.

Analysis Plan

Latent transition analysis was utilized to identify patterns of behavior with peers in middle childhood (Grade 3) and early adolescence (Grade 6) based on the six indicators of behavior with peers (prosocial behavior, socially withdrawn behavior, aggressive behavior, exclusion by peers, peer victimization, and relational aggression). First, to discern individual patterns of heterogeneity, we used latent profile analyses (a person-centered mixture modeling approach), using MPlus version 5.0 (Muthén & Muthén, 2008) to identify groups of individuals who exhibited similar patterns of behavior with peers in Grade 3 and Grade 6. To select the best latent class solution, we utilized the Lo-Mendell-Rubin Adjusted Likelihood Ratio Test (Yungtai, Mendell, & Rubin, 2001), which assesses whether the model with k classes provides significantly better fit than the model with $k-1$ classes. If the LMR-LRT was not significant, the model with $k-1$ fewer latent classes was selected. In addition to using the LMR-LRT, we examined model entropy and posterior probabilities of latent class assignment as indicators of model fit. Values for entropy and posterior probabilities of latent

class membership range from 0 to 1, with higher values indicating more accurate classification of individuals. In general, values over .70 are considered acceptable and values over .90 are considered excellent in terms of fit (S. L. Clark & Muthén, 2009). Entropy values greater than .90 indicate that the model fit is excellent, and simulation studies indicate that when entropy is high (greater than .80), classifying individuals into latent classes is appropriate (i.e., assigning individuals to membership in their most likely latent class and utilizing that variable as an independent or dependent variable). However, using this method can lead to decreased standard errors of auxiliary variables; consequently, interpreting trend effects is not recommended and researchers should rely on $p < .05$ as a minimum standard (S. L. Clark & Muthén, 2009).

After the appropriate number of latent classes was decided upon in middle childhood and early adolescence separately, we conducted a latent transition analysis (Nylund, Bellmore, Nishina, & Graham, 2007), which estimated the latent class solutions from 3rd and 6th grades simultaneously and derived the transitional probabilities of class membership in 6th grade based on class membership in 3rd grade. Transitional probabilities indicated the likelihood of individuals remaining in the same latent class (continuity) or transitioning to a different latent class (discontinuity) across the transition to adolescence. Individuals were assigned membership in their most likely latent classes in middle childhood and in early adolescence separately.

Because the present study focused on developmental continuity in adaptive and maladaptive behavior with peers and developmental discontinuity (i.e., individuals moving from more adaptive behavior with peers in the 3rd grade to more maladaptive behavior with peers in the 6th grade, compared with individuals who had more adaptive behavior at both time points; individuals with more maladaptive behavior in the 3rd grade shifting to more adaptive behavior with peers in the 6th grade, compared with remaining more maladaptive), we focused on the latent transitions that mapped onto this developmental continuity towards adaptive and maladaptive patterns of peer-directed behavior. In other words, we prioritized testing these latent transitions over other potential transitions (i.e., moving from aggressive to withdrawn and the reverse). In addition to this conceptual priority, it is important to note that there were methodological limitations to conducting analyses on certain developmental transitions. If too few individuals transitioned between latent classes, we were unable to conduct analyses examining these transitions due to concerns about power to detect effects. Therefore, our tests of predictors of latent transitions were based on a combination of theoretical interest (continuity and discontinuity) as well as practical methodological considerations (a sufficient number of individuals transitioning from one class to another).

Multinomial and binary logistic regressions were used to examine how the continuous variables that index mother-child and friendship quality were related to transitioning between latent classes, controlling for demographic characteristics of the child and family. Multinomial regression was used when there were multiple transitions of theoretical interest, and binomial logistic regression was used when transitions between two groups were of interest. In the first set of models, we only examined mother-child relationship quality variables; in the second series of models we only examined friendship quality variables. In the final series of models, we simultaneously estimated the association between mother-

child and friendship quality and continuity and discontinuity in behavior with peers across the transition to adolescence. These models estimate how covariates and key variables are associated with the odds of transitioning between a given latent class compared with the possibility of other latent class transitions. Marginal means and standard errors are reported. Marginal means indicate the change in the outcome variable associated with each increase in the independent variable accounting for all other covariates in the model.

Results

Latent Classes of Behavior with Peers

Latent profile analyses indicated that a 3-class solution provided the best fit to the data in middle childhood and early adolescence, compared with the 4-class solution (LMR-LRT = 454.05, $p = .12$ for middle childhood; LMR-LRT = 517.08, $p = .09$ for early adolescence). In both middle childhood and early adolescence, entropy values were excellent (.95 and .94 respectively). Posterior probabilities indicated that individuals were well matched to latent classes in both middle childhood (average posterior probability in middle-childhood Class 1 = .99, Class 2 = .93, and Class 3 = .97) and early adolescence (average posterior probability in early adolescence Class 1 = .99, Class 2 = .93, and Class 3 = .97). This indicated that our latent classes described the sample of individuals very well and that there was little error in classification of individuals to latent classes.

In both middle childhood and early adolescence, nearly identical solutions were derived (see Figure 1). This is particularly notable because different teachers reported at each time point. In both developmental periods, the largest latent classes consisted of youth who were high in prosocial behavior and relatively low in every other measure of behavior with peers (75.5% and 80% of youth belonged to this class in middle childhood and early adolescence, respectively). Given the pattern of overall prosocial behavior with peers, we named this latent class the Prosocial class. A second latent class was distinguished by relatively high levels of withdrawn behavior with peers, moderate levels of prosocial behavior with peers and exclusion by peers, and low levels of all other measures of behavior with peers (aggression, victimization, relational aggression; 11% youth belonged to this class in both childhood and early adolescence). Given that this group was identified predominantly by their withdrawn behavior with peers, we named them the Withdrawn class. Finally, the third class had the highest levels of overtly and relationally aggressive behavior compared with other groups, was likely to be excluded by peers, demonstrated the least prosocial behavior with peers, and was the most likely to be victimized by peers (13.5% and 9% of youth belonged to this class in childhood and early adolescence, respectively). Therefore, we named them the Aggressive class.

We also conducted the latent class analysis using mother-reports of prosocial, withdrawn, and aggressive behavior with peers in the 3rd and 6th grades. The substantive patterns did not change, although parents tended to report more prosocial behaviors with peers than did teachers. These results are reported in supplemental analyses available online. Given that teachers likely provide less biased assessments of child behavior with peers and also observe the child in a consistent setting (the school classroom), we chose to focus on teacher reports.

Deflected Pathways in the Transition to Adolescence

Of central interest to the present study was how individuals transitioned between latent classes from middle childhood to early adolescence (see Table 1 for transitional probabilities and n per latent class). Among individuals in the Prosocial class in middle childhood, 83% ($n = 695$) remained classified as Prosocial in early adolescence, 10% ($n = 64$) shifted to membership in the Withdrawn class and 7% ($n = 38$) shifted to the Aggressive latent class. Of individuals in the Withdrawn class in middle childhood, 43% ($n = 42$) remained Withdrawn in early adolescence, 50% ($n = 72$) shifted to the Prosocial class, and 7% ($n = 5$) shifted to the Aggressive class. Among individuals in the Aggressive class, 44% ($n = 54$) remained Aggressive in early adolescence, 49% ($n = 78$) shifted to the Prosocial class and 8% ($n = 8$) moved from Aggressive class membership to Withdrawn class membership. Thus, the most common pathways were remaining in the same latent class, shifting from aggressive or withdrawn patterns to prosocial patterns, and to a lesser extent shifting from prosocial patterns to aggressive or withdrawn patterns of behavior with peers.

Based on posterior probabilities of group membership in childhood and adolescence, seven groups were created: (1) children who were Prosocial in both developmental time periods, (2) children who were Prosocial in childhood but became Aggressive in adolescence, (3) children who were Prosocial in childhood but became Withdrawn in adolescence, (4) children who were Aggressive in both developmental periods, (5) children who were Aggressive in childhood but became Prosocial in adolescence, (6) children who were Withdrawn in both developmental periods, and (7) children who were Withdrawn in childhood but became Prosocial in adolescence. We did not examine Aggressive children who became Withdrawn in adolescence nor Withdrawn children who became Aggressive in adolescence because there were an insufficient number of youth who followed these patterns to be analyzed (only 13 individuals shifted between the Aggressive and Withdrawn classes across the transition to adolescence, suggesting that transitions between these two latent classes were rare, see Table 1) and the primary focus of this paper is on shifting from adaptive to maladaptive patterns of behavior with peers, and the reverse.

Subsequently, we used multinomial and binary logistic regressions to examine how mother-child and friendship quality were related to changes in latent class over time compared with remaining in the same latent class. We tested how mother-child and friendship quality were related to (1) becoming Aggressive between childhood and adolescence compared with remaining Prosocial, (2) becoming Withdrawn between childhood and adolescence compared with remaining Prosocial, (3) becoming Prosocial between childhood and adolescence compared with remaining Aggressive, and (4) becoming Prosocial between childhood and adolescence compared with remaining Withdrawn. Initially, separate models were analyzed for mother-child and friendship quality variables, but in the final series of models, we simultaneously estimated both mother-child and friendship variables in relation to the probability of transitioning between latent classes. We interpreted the odds ratios only for the final model.

Multinomial logistic regression was used to examine the transitions from the Prosocial class to either the Aggressive or Withdrawn class compared with remaining Prosocial class. Binary logistic regression was used to examine the transition (a) from the Aggressive class

to the Prosocial class compared with remaining in the Aggressive class and (b) from the Withdrawn class to the Prosocial class compared with remaining in the Withdrawn class. Table 2 presents the means, standard deviations, and correlations between variables used in these regression models.

Mother-Child and Friendship Quality and the Transition from Prosocial to Aggressive or Withdrawn Behavior with Peers

First, we tested how maternal sensitivity, positive maternal relationship with child, positive friend interactions, and negative friend interactions in early adolescence predicted becoming Aggressive or Withdrawn in adolescence (Table 3), controlling for prior maternal sensitivity, positive maternal relationship with child, positive friend interactions, and negative friend interactions as well as demographics (sex and ethnicity of the child, whether or not a father was present in the home, and income-to-needs ratio).

Compared with youth who remained in the Prosocial class across time, children who transitioned to the Aggressive class were more likely to be female and less likely to have a father in their home, although this finding did not hold once friendship quality variables were introduced. In the 6th grade, children who transitioned from the Prosocial to Aggressive class had fewer positive friend interactions and greater negative friend interactions compared with children who remained in the Prosocial class over time. For every unit decrease in positive friend interactions in the 6th grade, children were 2.3% more likely to transition from the Prosocial to the Aggressive latent class. For every unit increase in negative friend interactions in the 6th grade, a child was 2.7% more likely to transition from the Prosocial class to the Aggressive class across the transition to adolescence. Notably, this pattern was found while accounting for 3rd grade levels of positive and negative friend interactions, which suggests that declines in positive friend interactions and increases in negative friend interactions from 3rd to 6th grade increase the likelihood of becoming Aggressive across the transition to adolescence compared with remaining Prosocial.

Within the same multinomial logistic regression, we also tested how quality relationships with a parent or friend predict transitioning from the Prosocial latent class to the Withdrawn latent class, compared with remaining in the Prosocial latent class. Both positive and negative friend interactions were related to the likelihood of transitioning from the Prosocial to Withdrawn class, compared with remaining Prosocial over time. Specifically, fewer positive peer interactions in the 3rd grade, and declines in positive peer interactions between 3rd and 6th grade were associated with changing from Prosocial to Withdrawn behavior across the transition to adolescence. For every unit decline in positive friend interactions in 3rd grade, a child was 8.1% more likely to transition into the Withdrawn class by the 6th grade; furthermore, for every unit decrease in positive friend interactions in the 6th grade (accounting for 3rd grade levels on the same variable), youth were 11.2% more likely to transition to the Withdrawn class from the Prosocial class. Interestingly, children who become Withdrawn across the transition to adolescence had fewer teacher reported negative friendship interactions in the 3rd grade, but were no different from youth who remained Prosocial in teacher reported negative friend interactions in the 6th grade. For every unit

decrease in negative friend interactions in the 3rd grade, a child was 6.7% more likely to move into the Withdrawn latent class across the transition to adolescence.

Mother-Child and Friendship Quality and the Transition from Aggressive to Prosocial Behavior with Peers

Next we tested how changes in mother-child and friendship quality were associated with transitioning from the Aggressive class to the Prosocial class compared with remaining in the Aggressive class over time (see Table 4), controlling for 3rd grade levels of parent-child and best friendship relationship quality and demographic characteristics of the child (sex, ethnicity, whether or not a father was present in the home, and income-to-needs ratio). Maternal sensitivity, mother-child relationship quality, 3rd grade positive friend interactions, and 6th grade negative friend interactions were unrelated to transitioning from Aggressive to Prosocial behavior with peers compared with remaining Aggressive. Greater positive interactions with a best friend in the 6th grade (accounting for positive friendship experiences in the 3rd grade) was linked to becoming more Prosocial with peers compared with remaining Aggressive, but this finding was no longer significant once maternal quality variables were simultaneously estimated. Youth who transitioned to the Prosocial latent class also had lower levels of negative friend interactions in Grade 3 compared with youth who remained in the Aggressive latent class. Although the value of the outcome variable is dichotomous (remaining in the Aggressive class compared to transitioning from the Aggressive class to the Prosocial class), marginal means can be greater than 1. The marginal mean between negative friend interactions in the 3rd grade and transitioning to Prosocial behavior from Aggressive behavior with peers was greater than 1, indicating a steep slope in the association between negative friend interactions and transitioning between the latent classes.

Mother-Child and Friendship Quality and the Transition from Withdrawn to Prosocial Behavior with Peers

Finally, we tested how mother-child and friendship quality variables were related to transitioning from the Withdrawn class to the Prosocial class compared with remaining in the Withdrawn latent class (Table 5), controlling for 3rd grade levels of parent and friend relationship quality and demographic characteristics of the child (sex, ethnicity, whether or not a father was present in the home, and income-to-needs ratio). No other mother-child or friendship variables were related significantly to transitioning to the Prosocial latent class from the Withdrawn latent class (Table 5).

Discussion

Across childhood and adolescence, there is strong continuity in children's adaptive or maladaptive behavior with peers. Nevertheless, for a small number of children, there are significant changes in peer social competence across the transition to adolescence, with some youth demonstrating deflected developmental pathways, shifting to relatively more or less prosocial, aggressive, or socially withdrawn patterns of social functioning with peers. Among those on deflected developmental pathways, it is particularly interesting that some pathways were more likely to occur than were others. Although modest numbers of children

transitioned from prosocial behavior with peers to aggressive or withdrawn patterns and vice versa, almost no one transitioned between different maladaptive patterns (i.e., withdrawn or aggressive). Whereas both withdrawn and aggressive youth reported being excluded by peers, the lack of a common developmental pathway between aggressive and withdrawn behavior is similar to sociometric analyses during this age period, in which transitioning between certain groups (i.e., neglected and rejected) is rare (Coie & Dodge, 1983). In line with past research suggesting that part of the reason for continuity in development is consistency in the environment of the child (Sroufe et al., 2009), we found that changes in friendship quality from childhood to adolescence contributed to deflected developmental pathways. That is, changes in the quality of the interpersonal social environment were linked with pushing youth towards more adaptive or more maladaptive patterns of functioning in the peer group. Indeed, our results suggest that a high-quality relationship with a best friend can be a powerful impetus for promoting prosocial behavior with peers more broadly. Conversely, negative best friendship interactions served as a risk factor for developing maladaptive patterns of behavior with peers across the transition to adolescence.

One of the unique contributions of the present study is the simultaneous consideration of multiple aspects of adaptive and maladaptive patterns of behavior with peers, which yielded a set of findings that would be obscured if these patterns were examined separately. For example, socially withdrawn youth were reported to be both excluded by peers and withdrawn from peers. Yet, these youth also were reported to have *some* prosocial behaviors towards peers, although notably fewer than those in the Prosocial latent classes. Also, as expected, youth with more aggressive behavior towards peers also were reported to have greater victimization by peers, and greater relational aggression with peers compared with the Prosocial and Withdrawn groups. But at the same time, these aggressive youth *were* reported to have some prosocial behavior with peers and some withdrawn behavior with peers. Simply studying withdrawn behavior or aggressive behavior with peers would have obscured that these youth also have some positive interactions with peers, suggesting that more complex and nuanced network studies of the facets of peer relationships are needed (Huitsing & Veenstra, 2012). Future research that examines the salience of these different interactions would be important to the field. For example, it would be interesting if prosocial interactions among relatively more withdrawn or aggressive children were subjectively experienced as less positive than were similar interactions among youth who primarily experienced prosocial peer interactions.

Two main themes emerged when trying to understand contextual factors that predicted discontinuity of developmental pathways. First, positive and negative interactions with friends were more powerful for understanding developmental transitions than were mother-child relationship characteristics. This could possibly reflect that best friends become increasingly important socialization agents as children move into adolescence. Second, positive interactions with a best friend in early adolescence, above and beyond previous levels of positive interactions with a best friend, seemed to be especially salient for understanding developmental discontinuity. Individuals who experienced a decline in positive interactions with a best friend from 3rd to 6th grade were more likely to shift from adaptive to maladaptive behavior with peers as a whole, whereas those who experienced an increase in positive interactions with a best friend from 3rd to 6th grade were more likely to

become prosocial with their peers as a whole. The salience of positive interactions with a best friend for promoting shifting to more adaptive behavior with peers in general across the transition to adolescence was robust across models, suggesting that a best friendship may be a powerful protective and promotive factor for achieving competent behavior with peers.

One curious finding from the present study is that no parent-child or friend relationship quality measures were found to be associated with transitioning from withdrawn behavior to more adaptive behavior with peers. It may be the case that among socially withdrawn children, other socialization efforts predict engaging in more prosocial behavior with peers. For example, other factors such as developing a new friendship may predict a socially withdrawn child becoming more prosocial with peers. Indeed, other research suggests that friendships may be a key mechanism for socially withdrawn children becoming less withdrawn (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006) and research is needed that further explores how children transition out of socially withdrawn behavior during the transition to adolescence.

Among the strengths of this study are the large, regionally diverse sample and reliance on multiple reporters (parent and teacher) as well as direct observation. Moreover we simultaneously assessed different aspects of social functioning in the peer group, including prosocial behavior, aggression, and social withdrawal. By using a person-centered approach we were able to examine individual patterns of heterogeneity, and how covariates could differentially predict different types of discontinuity. Analyzing the data in this manner allowed us to be sure that the deflections in developmental pathways we identified were significant—changes in behavior with peers that might not have been captured by other analytic techniques. Indeed, analytic strategies that rely on one dimension of social functioning with peers may not capture the complexity and co-occurrence of multiple types of peer-directed behaviors within the child.

Nevertheless, the present study remains limited. Foremost, teachers in 3rd and 6th grades completed our assessment of behavior with peers. Whereas teachers are excellent, objective reporters of a child's typical behavior with peers, it is possible the way that a child interacts with peers at school may not be consistent with behavior with peers in other contexts (e.g., at home, in the neighborhood). We have no reason to suspect that teacher report on peer-directed behavior would bias the findings in the pattern of results identified in this study, particularly because different teachers provided observations at each age. Moreover, although our findings generally indicated that deflections in developmental pathways were related to the interpersonal environment in childhood and adolescence, the extent to which such patterns would be exhibited in higher-risk samples is not clear. It is important for future research to examine these developmental processes in such samples. Next, our assessment of maternal sensitivity was in 5th grade, not 6th grade, and it is possible that differences in the timing of assessment of this variable (5th grade vs. 6th) may have had implications for the patterns of findings observed here—specifically our lack of findings with respect to mother-child relationship quality and deflected pathways. Finally, as with all observational study designs, it is difficult to determine causality and temporal ordering of effects. It could be the case that, as we have hypothesized, changes in the quality of important relationships underlie the continuity or discontinuity of patterns of behavior with peers. Alternatively,

continuity and discontinuity of these patterns may influence subsequent changes in mother-child and friendship quality. Untangling the directionality of this association is key for future research.

Competent behavior with peers is both a marker of current adaptation and a predictor of future successful development. Although most youth exhibit continuity in social functioning with peers across the transition to adolescence, some children do change to patterns that are more or less adaptive. Importantly, best-friendship quality is related to changes in these patterns. It is possible that negative patterns that develop in close relationships during this period serve to decrease the social-emotional health of the individual and thereby contribute to less adaptive functioning in the peer group. In contrast, close relationships that increase in quality may serve to enhance the child's feelings of support and well-being, thereby also improving their social functioning in the general peer group (Collins et al., 2000). As well, children may learn important social skills in high-quality close relationships, which then serve to enhance more adaptive behavior with peers as a whole. Because successful engagement with peers is of increasing importance through adolescence, as youth spend more time with peers, a focus on the impact of close relationships on functioning in the peer group is worth emphasizing.

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(a) Latent Classes in Middle Childhood

(b) Latent Classes in Early Adolescence

Figure Captions

Figure 1.
Latent Classes of Behavior with Peers

Table 1

Transitional Probabilities Between Middle-Childhood and Early-Adolescence Latent Classes

Middle-Childhood Latent Class	Early-Adolescence Latent Class		
	<u>Prosocial</u>	<u>Withdrawn</u>	<u>Aggressive</u>
	Transitional probability (n per class)	Transitional probability (n per class)	Transitional probability (n per class)
Prosocial	.83 (<i>n</i> = 695)	.10 (<i>n</i> = 64)	.07 (<i>n</i> = 38)
Withdrawn	.50 (<i>n</i> = 72)	.43 (<i>n</i> = 42)	.07 (<i>n</i> = 5)
Aggressive	.49 (<i>n</i> = 78)	.08 (<i>n</i> = 8)	.44 (<i>n</i> = 54)

Table 2
Means, Standard Deviations, and Bivariate Correlations Between Key Variables

	Mean	SD
1. Sex (1 = Female)	.52	.50
2. Ethnicity (1 = Not-White)	.20	.40
3. Father in home	.70	.46
4. Income-to-Needs	4.39	3.77
5. Maternal Sensitivity, Grade 3	16.34	2.49
6. Maternal Sensitivity, Grade 5	16.50	2.42
7. Maternal relationship quality, Grade 3	63.06	7.47
8. Maternal relationship quality, Grade 6	61.41	8.29
9. Positive peer interactions, Grade 3	3.15	0.39
10. Positive peer interactions, Grade 6	3.18	0.36
11. Negative peer interactions, Grade 3	1.89	0.53
12. Negative peer interactions, Grade 6	1.77	0.49

Bivariate Associations											
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	-.02	.01	>-.01	-.13	-.10	.02	.02	-.18	-.23	.06	.13
2.		-.29	-.18	-.21	-.25	.01	-.05	-.12	-.14	.12	.16
3.			.28	.21	.29	.07	.14	.14	.13	-.16	-.15
4.				.28	.26	.10	.12	.14	.10	-.14	-.11
5.					.47	.22	.19	.18	.18	-.20	-.13
6.						.18	.21	.18	.21	-.18	-.20
7.							.66	.15	.06	-.14	-.07
8.								.14	.10	-.16	-.07
9.									.23	-.59	-.18
10.										-.24	-.56
11.											.21
12.											

Note. Correlations in bold are significant at $p < .05$.

Table 3

Multinomial Logistic Regression With Mother-Child and Friendship Quality From Middle Childhood to Early Adolescence—Transitioning From the Prosocial to the Aggressive or Withdrawn Class:

	Model 1: Mother Relationships Only	Model 2: Friend Relationships Only	Model 3: Mother and Friend Relationships
<i>Prosocial to Aggressive Latent Class</i>	Marginal Effect(SE)	Marginal Effect(SE)	Marginal Effect(SE)
Sex (1 = Female)	0.046(0.012) *	0.008(0.006)	0.008(0.006)
Ethnicity (1 = Not-White)	0.003(0.015)	−0.008(0.007)	−0.004(0.006)
Father in home	−0.026(0.013) *	−0.013(0.007)	−0.010(0.006)
Income-to-Needs Ratio	0.000(0.002)	0.000(0.001)	0.001(0.001)
Maternal sensitivity, Grade 3	0.001(0.002)	-	−0.001(0.001)
Maternal Sensitivity, Grade 5	−0.004(0.003)	-	−0.000(0.000)
Mother-child relationship quality, Grade 3	−0.001(0.001)	-	−0.000(0.000)
Mother-child relationship quality, Grade 6	−0.001(0.001)	-	−0.000(0.000)
Positive friend interactions, Grade 3	-	−0.009(0.011)	−.007(0.009)
Positive friend interactions, Grade 6	-	−0.032(0.013) *	−0.023(0.012) ⁺
Negative friend interactions, Grade 3	-	0.004(0.008)	−0.003(0.006)
Negative friend interactions, Grade 6	-	0.038(0.013) **	0.027(0.012) *
<i>Prosocial to Withdrawn Latent Class</i>			
Sex (1 = Female)	0.007(0.021)	−0.003(0.021)	−0.004(0.022)
Ethnicity (1 = Not-White)	−0.047(0.035)	−0.039(0.032)	−0.026(0.034)
Father in home	0.002(0.004)	0.017(0.027)	0.014(0.029)
Income-to-Needs Ratio	−0.005(0.004)	−0.006(0.004)	−0.006(0.004)
Maternal sensitivity, Grade 3	−0.007(0.005)	-	−0.004(0.005)
Maternal Sensitivity, Grade 5	0.004(0.005)	-	0.003(0.006)
Mother-child relationship quality, Grade 3	0.002(0.002)	-	0.003(0.002)
Mother-child relationship quality, Grade 6	−0.002(0.002)	-	−0.003(0.002)
Positive friend interactions, Grade 3	-	−0.080(0.038) *	−0.081(0.041) *
Positive friend interactions, Grade 6	-	−0.180(0.040) **	−0.112(0.041) **
Negative friend interactions, Grade 3	-	−0.056(0.027) *	−0.067(0.029) *
Negative friend interactions, Grade 6	-	−0.0132(0.027)	0.014(0.029)

Note. Reference group is children who remained in the Prosocial class.

⁺ $p = .06$.

* $p < .05$.

** $p < .01$.

Table 4

Binary Logistic Regression With Mother-Child and Friendship Quality From Middle Childhood to Early Adolescence—Transitioning From the Aggressive to the Prosocial Class

	Model 1: Mother Relationships Only	Model 2: Friend Relationships Only	Model 3: Mother and Friend Relationships
	Marginal Effect(SE)	Marginal Effect(SE)	Marginal Effect(SE)
Sex (1 = Female)	−0.222(0.125)	−0.451(0.284)	−0.452(0.394)
Ethnicity (1 = Not-White)	−0.437(0.160) **	−0.643(0.384)	−1.254(0.863)
Father in home	0.146(0.124)	0.279(0.294)	0.167(0.469)
Income-to-Needs Ratio	0.047(0.024) *	−0.013(0.044)	0.083(0.110)
Maternal sensitivity, Grade 3	0.008(0.025)	-	0.062(0.063)
Maternal Sensitivity, Grade 5	0.027(0.025)	-	−0.095(0.094)
Mother-child relationship quality, Grade 3	−0.002(0.010)	-	−0.002(0.023)
Mother-child relationship quality, Grade 6	−0.001(0.009)	-	0.007(0.021)
Positive friend interactions, Grade 3	-	0.107(0.386)	0.476(0.573)
Positive friend interactions, Grade 6	-	1.264(0.600) *	1.696(1.000)
Negative friend interactions, Grade 3	-	−0.754(0.287) **	−1.379(0.669) *
Negative friend interactions, Grade 6	-	−0.352(0.302)	−0.522(0.471)

Note. Reference group is children who remained in the Aggressive class.

* $p < .05$.

** $p < .01$.

Table 5

Binary Logistic Regression With Mother-Child and Friendship Quality From Middle Childhood to Early Adolescence—Transitioning From the Withdrawn to the Prosocial Class

	Model 1: Mother Relationships Only	Model 2: Friend Relationships Only	Model 3: Mother and Friend Relationships
	Marginal Effect(SE)	Marginal Effect(SE)	Marginal Effect(SE)
Sex (1 = Female)	−0.146(0.115)	−0.099(0.138)	−0.110(0.158)
Ethnicity (1 = Not-White)	−0.199(0.165)	−0.194(0.214)	−0.163(0.218)
Father in home	0.147(0.118)	0.165(0.155)	0.084(0.174)
Income-to-Needs Ratio	0.029(0.019)	0.020(0.025)	0.026(0.032)
Maternal sensitivity, Grade 3	−0.012(0.024)	-	−0.004(0.034)
Maternal Sensitivity, Grade 5	0.003(0.024)	-	0.015(0.035)
Mother-child relationship quality, Grade 3	0.016(0.010)	-	0.015(0.014)
Mother-child relationship quality, Grade 6	−0.013(0.009)	-	−0.001(0.014)
Positive friend interactions, Grade 3	-	−0.041(0.120)	−0.186(0.238)
Positive friend interactions, Grade 6	-	0.364(0.254)	.0162(0.276)
Negative friend interactions, Grade 3	-	−0.066(0.152)	−0.089(0.172)
Negative friend interactions, Grade 6	-	0.197(0.174)	0.199(0.199)

Note. Reference group is children who remained in the Withdrawn class.