Chapter 3

The Development of Conduct Problems and Depressive Symptoms in Early Elementary School Children: The Role of Peer Rejection

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Abstract

Conduct problems in childhood often co-occur with symptoms of depression. This study explored whether the development of conduct problems becomes indirectly linked to depressive symptoms in a sample of 323 kindergarten children, followed over a period of two school years. Results showed that the development of conduct problems was indirectly linked to the development of depressive symptoms via experiences of peer rejection. These links were similar for boys and girls. Results underscore that part of the development of childhood symptoms of depression in the early years of school can be explained by a cascade effect in which the development of conduct problems results into poor peer experiences which ultimately predict depressive symptoms.

Introduction

Problems with social relationships, such as peer rejection, have been the focus of many studies examining the development of psychopathology. Indeed, several reviews showed that children who are rejected by their mainstream peers have higher levels of conduct problems (e.g., physical aggression, destruction of property, and lying) and symptoms of depression, than children who do not experience rejection (Boivin, Hymel, & Hodges, 2001; Deater-Deckard, 2001; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). Not only is peer rejection linked to both conduct problems and symptoms of depression, it may be that such difficulties with peers explain, at least in part, the co-occurrence between these forms of behavioral and emotional problems. For example, Achenbach and Rescorla (2001) found an average correlation of approximately .50 (.54 and .45 for parent and teacher reports, respectively) between behavioral problems and emotional problems in the general population of children in the United States. Similar correlations have been found in the general Dutch population (Verhulst, van der Ende, & Koot, 1996; Verhulst, van der Ende, & Koot, 1997).

It has been proposed that one of the reasons why different forms of psychopathology co-occur is because one set of problems may create a context in which other problems may develop (Caron & Rutter, 1991). The phenomenon in which problems in one domain of functioning spread out and affect adaptation in other domains has been described as a cascade effect, otherwise called a snowball, indirect or chain effect (Masten, Burt, & Coatsworth, 2006; Masten & Cicchetti, 2010; Rutter & Sroufe, 2000). Following from such studies, this study explored whether the time related link between conduct
problems and symptoms of depression may be explained by a cascade effect. Specifically, this study investigated whether the developmental link between conduct problems and depressive symptoms is indirect, in that conduct problems hamper children’s social development, expressed as experiences of peer rejection, which, in turn, place the child at risk of developing symptoms of depression. This is studied in a community sample of kindergarten children followed longitudinally over two school years.

Peer Relations and Children’s Behavioral Development

Forming satisfactory peer relations is one of the most important developmental tasks in childhood (Cicchetti & Schneider-Rosen, 1986; Cicchetti & Toth, 1998; Masten & Coatsworth, 1998). In fact, following the transition to kindergarten, children often need to function in a formal peer group for the first time. This peer group provides valuable opportunities for children to learn and practice prosocial skills, and to understand and internalize social norms and rules. Establishing satisfactory peer relations during this period is therefore a major developmental challenge. However, not all children will succeed in meeting this challenge, as approximately 10-15% of children experience peer rejection (Deater-Deckard, 2001; Rubin, Bukowski, & Parker, 2006).

Being rejected by a peer group can contribute to the emergence of psychopathological symptoms in several ways. Because of their poor social status, rejected children are likely to be deprived of the opportunities that the social context of a peer group provides for learning social norms and rules. As a consequence, they have fewer opportunities to practice social skills, which increases the probability that they will behave inappropriately in social interactions and receive subsequent negative feedback and negative responses in their encounters with peers (Hartup, 1992; Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006). Such feedback and responses from peers are likely to become chronic, as levels of peer rejection have been found to be highly stable (Camodeca, Goossens, Meerum Terwogt, & Schuengel, 2002; Cillessen, Bukowski, & Haselager, 2000; Lu Jiang & Cillessen, 2005; Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007). A possible consequence of this chronic rejection by peers is that children may develop a low sense of self competence resulting from internalized negative feedback on their social relational failures (Cole, 1991; Cole, Jacquey, & Maschman, 2001; Cole, Martin, & Powers, 1997; Masten & Coatsworth, 1998). In addition, these children are likely to develop (negatively) biased social cognitions because of their repeated negative experiences with their peers (Dodge, Lansford, Burks, Bates, Pettit et al., 2003).
Because of such cognitive biases, the chance that that children will display negative maladaptive behaviors in future peer interactions is increased. This, in turn, may elicit additional negative social feedback. It is therefore not surprising that research has shown peer rejection contributes to the development of both conduct problems and internalizing problems, such as symptoms of depression (DeRosier, Kupersmidt, & Patterson, 1994; Ladd, 2006).

**Peer Rejection and the Development of Conduct Problems and Depressive Symptoms**

It is important to note that experiences of peer rejection may not only explain the continuity of conduct problems as well as depressive symptoms; it may also explain the links between them (Deater-Deckard, 2001; Rubin et al., 2006). In fact, according to the failure model proposed by Patterson and Capaldi (1990), an indirect path from conduct problems to depressive symptoms is predicted. These authors propose that childhood conduct problems diminish children’s chances of succeeding in establishing satisfying relations with peers. Possibly through the processes described earlier (social and social cognitive), these children may internalize their experience of failing this major developmental task and develop symptoms of depression. Thus, according to the failure model, a time related, indirect link from conduct problems to depressive symptoms is expected, because of the developmental cascade from peer rejection to depressive symptoms which was initiated by conduct problems.

Despite the theoretical feasibility of a time related link between conduct problems and symptoms of depression, few longitudinal studies have explored the role of troublesome peer relations as a connector in this link and most of these studies did not include data on social functioning in kindergarten. However, two sources of evidence underscore the plausibility of the failure hypothesis. First, studies have indeed shown that conduct problems, or broader behavior problems in kindergarten and the early elementary school period, predict depressive symptoms/emotional problems above and beyond the stability of such symptoms/problems (Timmermans, van Lier, & Koot, 2010; van Lier & Koot, 2010). Second, some studies indeed found behavioral and emotional problems to be related over time via poor peer relations. For instance, Ladd and Troop-Gordon (2003) showed that aggression in kindergarten predicted peer rejection over grades 1-3, which in turn predicted loneliness and overall internalizing problems at age 10. Additionally, van Lier and Koot (2010) found that the path from externalizing symptoms in kindergarten to internalizing symptoms in fourth grade was indeed an indirect one in which peer rejection
in grades 1-3 was the connector. However, neither of these studies assessed peer rejection in kindergarten, the period in which poor peer experiences likely emerge for the first time. A study by Burt and Roisman (2010) did include assessments of social competence (not peer rejection) from preschool onwards. They found that externalizing problems in preschool predicted poor social competence in the first grade, which was associated with depressive symptoms in the fifth grade. However, as poor social skills are theorized and empirically found to follow poor social status (Haselager, Cillessen, Van Lieshout, Riksen-Walraven, & Hartup, 2002; Rubin et al., 2006), it may well be that the influence of peer rejection on internalizing problems starts earlier.

However, other studies found no support for an indirect link from conduct problems to depressive symptoms via peer rejection. For instance, although Pedersen, Vitaro, Barker, and Borge (2007) did find that disruptiveness at age six predicted repeated experiences of rejection over the duration of elementary school, these experiences of rejection did not predict depressive symptoms in early adolescence. They did, however, predict feelings of loneliness in early adolescence. Finally, Kiesner (2002) did not find support for links between externalizing and internalizing problems via peer rejection in late childhood. Although he found a path from externalizing problems to peer rejection, and a path going back from peer rejection to internalizing problems, the overall indirect path was non-significant.

Thus, despite some evidence for the role of peer rejection in the link between conduct problems and depressive symptoms, this evidence is not unequivocal, and most studies did not explore the kindergarten period, in which peer rejection is expected to emerge possibly for the first time. Therefore, the main objective of this study was to explore whether the development of conduct problems in children becomes linked to the development of depressive symptoms because conduct problems evokes experiences of peer rejection, which in turn increase the risk of developing depressive symptoms (a cascade effect). In our study we focused on the period from kindergarten to first grade during which peer relations become an important part of children’s lives. We assessed all constructs in parallel which is an important methodological advantage of this study, in that it allowed us to test the expected indirect path using developmental associations.

Before studying the potential indirect link, as a starting point, we first explored whether conduct problems indeed added to the probability of developing symptoms of depression over time above and beyond the stability of depressive symptoms. Based on previous studies, we hypothesized finding such directional links. Then we tested the
cascade hypothesis, that conduct problems would predict experiences of peer rejection, which in turn would predict the development of depressive symptoms. Specifically, the hypothesis stating that the developmental links between conduct problems and depressive symptoms are direct (the direct model) was compared with the alternative hypothesis that this link is indirect, and runs via experiences of peer rejection (the indirect model). We hypothesized finding support for the indirect model. Finally, we tested for sex differences. Studies on the role of peer rejection in the links between externalizing and internalizing symptoms did not find sex differences (Ladd & Troop-Gordon, 2003; Pedersen, Vitaro, Barker, & Borge, 2007; van Lier & Koot, 2010). However, other studies do suggest that there are differences between boys and girls. For instance, peer rejection may influence boys’ externalizing problems more negatively than girls’ (DeRosier et al., 1994; Moffitt, Caspi, Rutter, & Silva, 2001), whereas negative peer experiences may be more strongly linked with internalizing problems for girls (Crick & Zahn-Waxler, 2003).

Method

Participants

Eighteen schools from the northern and the eastern part of the Netherlands were recruited via municipal health services to participate in a longitudinal study on children’s social-emotional development. Children who were in kindergarten (N = 323, 54% boys, mean age = 5.10 years, SD = 0.37 at baseline) were included in the study. The children were followed over two school years. In each school year they were assessed twice (four assessments in total), starting in the fall of kindergarten (baseline, T1). Reassessments occurred at 6 (T2), 12 (T3) and 18 (T4) months. The parents of all the children were informed about the study and given the opportunity to refuse to consent to the participation of their child. Almost all of the children (99.9%) were allowed to participate. The vast majority (95%) of the children were from Dutch/Caucasian background, 0.3% were Surinamese, 2.5% were Turkish and 2.2% belonged to another ethnic group.

Half of the study sample received a preventive intervention program, the PATHS curriculum (Kusché & Greenberg, 1994), aimed at improving children’s social and emotional competence. Children were assigned to the intervention or a control condition using a quasi experimental design. In the fall of year one the program was implemented in the intervention classes.
Data on conduct problems and symptoms of depression at T4 (last assessment) were missing for 27 children (8.36%) due to absence during data collection because of illness, grade retention, or because they moved to another school. This loss was not related to the children’s sex ($\chi^2 (1, N=323) = .31, p = .58$). However, children with missing data had higher baseline levels of conduct problems ($F (1, 322) = 4.60, p < .05, \eta^2 = .01$), as well as symptoms of depression ($F (1, 322) = 5.35, p < .05, \eta^2 = .02$) compared to the children with complete data.

**Procedure**

Face to face interviews were used to obtain peer nominations. These individual interviews with each child were carried out by trained graduate or undergraduate students. To ascertain that each child knew who he/she was nominating, interviewers had photos of the children. Children were asked to point at these when nominating a specific child. At the end of each assessment, the children received a little gift as a reward for their assistance. Psychopathology ratings were obtained from the teachers in the same months in which the children were assessed. Teachers also received a gift as a token of appreciation for participating in the study.

**Measures**

*Teacher ratings of conduct problems and depressive symptoms* were obtained using the Problem Behavior at School Interview (PBSI; Erasmus MC, 2000). The PBSI is a 42-item questionnaire assessing the psychosocial adjustment of children. Teachers rated their pupils’ behavior on a five-point scale ranging from ‘never applicable’ to ‘often applicable’. Conduct problems were rated through 12 items (e.g. ‘threatens other people’, ‘starts fights’, ‘truancy’, ‘attacks other children physically’, ‘tells lies’, ‘does not feel guilty when misbehaves’). Cronbach’s alpha ranged from .91 to .92 over the assessments. Symptoms of depression were rated through four items, ‘is unhappy or depressed’; ‘is indifferent, apathetic and unmotivated’; ‘does not take pleasure in activities’ and ‘feels inferior’). Cronbach’s alpha ranged from .82 to .83 over the assessments. The convergent validity of the PBSI was found to be good as indicated by the correlations between the PBSI and the Teacher’s Report Form (Achenbach, 1991), which were .75 ($p < .01$) for externalizing behavior and .55 ($p < .01$) for internalizing behavior (Witvliet, van Lier, Cuijpers, & Koot, 2010).
Peer nominations of aggression were measured by asking children to nominate all classmates who fit the following description: ‘someone who hits other children’. The total number of nominations that each child in the class received was summed and divided by the class size minus one (self-nominations were not allowed). Other studies reported peer nominated aggression to be reliable and to correlate significantly with self-reports as well as teacher-reports of similar behavior (Dodge, Pettit, & Bates, 1994; Epkins, 1995). In the current study, the correlations between peer nominations of aggression and teacher-rated conduct problems ranged from .52 to .59. The z-standardized peer scores and teacher scores were therefore summed to create a multi-informant conduct problems score.

Peer social-preference was assessed using the peer nominations of ‘like most’, and ‘like least’, as delineated by Coie, Dodge, and Coppotelli (1982). Children were asked to nominate an unlimited number of classmates whom they liked most and whom they liked least. For each child the total number of the ‘like most’ nominations and the ‘like least’ nominations were divided by the number of children in the class minus one (self-nomination was not allowed). The ‘like least’ score was then subtracted from the ‘like most’ score to generate the social preference score. These social preference scores were then multiplied by -1 so that the high scores represented poor social preference (peer rejection). Social preference is generally regarded as a reliable and valid measure of sociometric status (Cillessen & Mayeux, 2004; Rubin et al., 2006).

Data Analyses

First, to test the hypothesis that already in kindergarten and first grade elementary school, conduct problems predict the development of depressive symptoms, an autoregressive cross-lagged model (Jöreskog, 1970) was used. In the autoregressive paths, variables were regressed on their immediate prior values, to study stability within processes. Cross-sectional correlations between conduct problems and depressive symptoms were included in the models. To study possible cross-over effects, cross-time paths from conduct problems to depressive symptoms (and vice versa) were allowed for. Significant cross-lagged paths from conduct problems to depressive symptoms would reflect the anticipated prediction of depressive symptoms by prior levels of conduct problems, while controlling for stability within and concurrent links between these domains of psychopathology.

After having studied the direction of effect between conduct problems and depressive symptoms, the hypothesis on the connecting role of poor social preference in
this longitudinal link was tested using triple latent growth models. The development of each construct was represented by two latent growth parameters, an intercept (centered at the first assessment) to assess initial level differences and a linear slope, which represents growth over the repeated assessments. Given our focus on developmental links, we focused on slope associations, although links between intercepts were allowed for. A test for the joint significance of the two directional paths between the slopes (MacKinnon, Lockwood, & Williams, 2004) was used to test for the significance of the indirect path (cascade effect) from conduct problems to depressive symptoms via poor social preference. To test for possible sex differences, multiple group models were used. A model in which the path estimates were freely estimated across gender was compared to a model in which the path estimates were constrained to be equal across boys and girls using a chi-square difference test.

All models were fitted using Mplus 5.1 (Muthén & Muthén, 1998-2009). Model fit was determined through the Comparative Fit Index (CFI; values ≥ .90; Bollen & Long, 1993)), the Tucker-Lewis Index (TLI; values ≥ .90; Bollen & Long, 1993), and the Root Mean Square Error of Approximation (RMSEA; values ≤ .08; Browne & Cudeck, 1992). As data were nested within classes, standard errors were adjusted using a sandwich estimator (Williams, 2000). Missing data was handled through Full Information Maximum Likelihood estimation (FIML). To account for the non-normal distribution of all scores, an MLR estimator, which provides robust standard errors, was used.

Results
Descriptive Statistics

The means and standard deviations of all the study variables for boys and girls are shown in Table 3.1. Boys scored higher on conduct problems and poor social preference than girls. No differences were found in the levels of depressive symptoms between boys and girls. The bivariate Pearson correlations among the study variables are reported in Table 3.2 for boys and girls separately. For boys and girls significant within-variable correlations were found for conduct problems, depressive symptoms (except for T2-T3) and poor social preference. Moreover, the general pattern of the time lagged correlations showed significant correlations between conduct problems and depressive symptoms, conduct problems and poor social preference, and between poor social preference and depressive symptoms, for both boys and girls.
Table 3.1 Means and Standard Deviations of Assessed Study Variables

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<th>Girls</th>
<th>Test</th>
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<td>SD</td>
<td>M</td>
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<td>SD</td>
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<td>T4</td>
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Note. T = measurement wave.

* p < .05. ** p < .01.
Table 3.2 Correlations between Conduct Problems, Depressive Symptoms, and Poor Social Preference

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Note. Correlations for boys are below the diagonal, those for girls are above the diagonal. T = measurement wave.
* p < .05. ** p < .01.
Developmental Links between Conduct Problems and Depressive Symptoms

To test for the direction of effect between the four waves of assessments of conduct problems and symptoms of depression, a cross-lagged model was fitted. In addition to the autoregressive and within-time correlations, cross-lagged paths from conduct problems to depressive symptoms and vice versa were allowed for. This model fitted the data well (CFI = .96, TLI = .94, RMSEA = .07). The results are depicted in Figure 3.1. Significant stability estimates for conduct problems were found, as well as for symptoms of depression (except for T2-T3). Furthermore, conduct problems consequently added to the prediction of depressive symptoms over time. Specifically, the results showed that although the stability path of depressive symptoms within one school year (rated by the same teacher) differed from the stability path across the school years (rated by different teachers), the estimates of the cross-over paths from conduct problems to depressive symptoms did not differ within school year as compared to across school years. No additive effects from depressive symptoms to conduct problems were found. Having established the anticipated direction of effect from conduct problems to symptoms of depression across kindergarten and the first grade of elementary school, we then tested for the role of poor social preference in this developmental link.

Figure 3.1. Results of the autoregressive cross-lagged model on the cross-time links between conduct problems and symptoms of depression. CP = conduct problems; DS = depressive symptoms.

* p < .05. ** p < .01. *** p < .001.
Poor Social Preference and the Development of Conduct Problem and Depressive Symptoms

We tested for the potential role of poor social preference in the developmental link between conduct problems and depressive symptoms using a triple latent growth model. Significant variances in the slope parameters of conduct problems ($\sigma^2 = 0.01$, $SE = 0.00$, $p < .01$), symptoms of depression ($\sigma^2 = 0.20$, $SE = 0.08$, $p < .05$) and poor social preference ($\sigma^2 = 0.07$, $SE = 0.08$, $p < .01$), were all present.

First, we fitted a model containing directional links from the growth parameters of conduct problems to the growth parameters of depressive symptoms. In this model, no links between the growth parameters of poor social preference (the hypothesized connector) and the growth parameters of conduct problems or depressive symptoms were allowed for (the direct model). This model was compared with a model in which poor social preference was specified as the connector. Directional paths from the growth parameters of conduct problems to those of poor social preference, and from the growth parameters of poor social preference to those of depressive symptoms, were specified (the indirect model). Note that no direct link from conduct problems to depressive symptoms was specified. Thus, different from classical mediation our cascade hypothesis does not assume that the preexisting direct link between conduct problems and depressive symptoms is explained by poor social preference. Rather, it assumes a pure indirect path between the three variables. However, a significant indirect path has been described as a mediation effect (MacKinnon, 2002). In this model links from the intercept of conduct problems to the slope of social preference and from the intercept of social preference to the slope of depressive symptoms were also allowed for.

Results showed that the indirect model had a significantly better fit to the data than the direct model ($\Delta \chi^2 (3) = 33.91$, $p = .00$). The indirect model had a satisfactory fit to the data ($CFI = .93$, $TLI = .92$, $RMSEA = .07$). The results are shown in Table 3.3. The slope of conduct problems predicted the slope of social preference, which, in turn, predicted the slope of depressive symptoms. The test to see whether these paths formed the hypothesized indirect path from the slope of conduct problems to the slope of depressive symptoms via the slope of poor social preference indeed was significant ($\beta = .56$, $p < .01$).
Table 3.3 Results of the Triple Growth Model Testing for an Indirect Path from Conduct Problems to Depressive Symptoms via Poor Social Preference

<table>
<thead>
<tr>
<th></th>
<th>Direct effects</th>
<th>Indirect effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CP $\rightarrow$ PSP</td>
<td>PSP $\rightarrow$ DS</td>
</tr>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.18</td>
<td>0.02</td>
</tr>
<tr>
<td>Slope</td>
<td>0.21</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Note. CP = conduct problems. PSP = poor social preference. DS = depressive symptoms. 
* $p < .05$. ** $p < .01$. *** $p < .001$.

**Sex Invariance and Intervention Effect**

We tested whether the strengths of the associations comprising the indirect path from conduct problems to depressive symptoms via poor social preference was sex-invariant. To this end, a multiple group model was fitted in which boys were compared to girls. First, we fitted a model in which all path estimates were freely estimated for boys and girls. This model was compared to the second model in which the paths comprising the indirect path (the path from the slope of conduct problems to slope of social preference and the path from the slope of social preference to slope of depressive symptoms) were constrained to be equal across sex. Results showed that these links did not differ between boys and girls ($\Delta \chi^2 (2) = 0.17, p = .92$).

Finally, as stated, approximately half of the sample received a preventive intervention. Studying intervention effects is not an objective of our study, but we tested whether the path estimates were similar for the intervention and control children using a multiple group model. The model in which path estimates were constrained to be equal across the conditions did not differ significantly from the one in which the growth parameters were freely estimated ($\Delta \chi^2 (2) = 2.94, p = .23$).

**Discussion**

The aim of this study was to test whether conduct problems and depressive symptoms become longitudinally linked via peer rejection in a sample followed from the beginning of kindergarten until the end of the first grade. In accordance with the theoretical model, early conduct problems repeatedly predicted depressive symptoms over time.
However, as expected, this link was indirect. The development of conduct problems caused experiences of peer rejection, which in turn increased the risk of developing depressive symptoms. These results applied equally to boys and girls, despite sex differences in levels of conduct problems and experiences of peer rejection. This finding is in line with previous research reporting no sex differences in cross-time links from behavioral to emotional problems via peer rejection (Ladd & Troop-Gordon, 2003; Pedersen et al., 2007; van Lier & Koot, 2010). Thus, it seems that although girls are less likely to exhibit conduct problems and are less likely to become rejected, those who have early conduct problems are as likely as boys to be affected by poor experiences with peers in their development of depressive symptoms.

The results of this study concur with previous studies showing that behavioral and emotional problems become linked via poor relations with peers (Capaldi, 1992; Ladd & Troop-Gordon, 2003; van Lier & Koot, 2010). However, in our study, parallel assessments of all construct were used and links from conduct problems to peer rejection, and from peer rejection to depressive symptoms, were found using slope (i.e. developmental) parameters. Thus, although longitudinal links were reported in previous studies, our study adds to this by showing that such longitudinal links exist above and beyond concurrent links. The young age of the children in this study should also be taken into account. Unlike the studies by Ladd and Troop-Gordon (2003) and van Lier and Koot (2010), peer rejection was assessed at the beginning of kindergarten. The significant stability correlations showed that the first assessment of peer rejection, assessed only two months after the children entered kindergarten, predicted future experiences of rejection. For instance, the correlation coefficient between social preference at T1 and T4 was .36 ($p < .01$) for boys and .48 ($p < .01$) for girls. Therefore, peer rejection may start early and these first experiences may result in chronic rejection.

The finding that early experiences of peer rejection may explain why children with conduct problems also develop depressive symptoms has developmental significance in at least two ways. First, unlike conduct problems, which decrease as children grow older (Bongers, Koot, van der Ende, & Verhulst, 2003), internalizing problems become more prevalent and stable when children grow older (Bongers et al., 2003; Zahn-Waxler, Shirtcliff, & Marceau, 2008). Poor social experiences early on may explain why children develop depressive symptoms for the first time. Second, peer rejection was assessed after two months in kindergarten, and was found to be quite stable thereafter. This implies that children receive their social position swiftly, and once poorly accepted, remain poorly.
accepted by peers, implying that chronic rejection may emerge early in life. As children’s
cognitive capacity develops and matures over the successive years in elementary school, it
is likely that they will become increasingly aware of difficulties concerning social
relations, and will be more affected by them because they will be better able to incorporate
these experiences into their self-beliefs (Ladd & Troop-Gordon, 2003). Indeed, Ladd
(2006) showed that peer rejection increasingly added to the development of externalizing
as well as internalizing problems over the course of childhood. Therefore, not only did our
study underscore that the postulated cascade effect starts right after the transition to
kindergarten, it may well be that these early experiences set off a chain of negative social
and cognitive effects that may further hamper the successful development of children, and
make them likely to develop psychopathology, both of internalizing and externalizing
natures.

Thus, although not decisive, these results are mostly supportive of the hypothesis
that in kindergarten, the development of conduct problems already puts children at risk of
becoming rejected by their peers. Experiencing rejection, in turn, places these children at
risk of also developing symptoms of depression. Our results thereby support the failure
model delineated by Paterson and Capaldi (1990), and offer a possible explanation for the
well established fact that difficulty with peer relations is linked to both conduct problems
and symptoms of depression. Furthermore, these results underscore that in addition to
studying the personal and environmental factors underlying specific forms of
psychopathology, research should address the cross-time additive effects of one type of
psychopathology on another.

The results of this study should be interpreted keeping several limitations in mind.
First, our study sample was comprised of predominately Caucasian children living in rural
areas in the Netherlands. It is therefore uncertain whether our results can be generalized to
a more diverse population, including children from high risk environments. Second,
despite a sizeable sample and the use of repeated assessments, the power to detect sex
differences in the associations between conduct problems, peer rejection and depressive
symptoms, may have been limited. A third limitation is the relatively short follow-up
period of two school years. Although focusing on the start of formal education, our
conclusions are limited to a restricted age group and possible consequences for the long
term cannot be inferred from this study.
Implications for Research, Policy, and Practice

This research provides valuable insights into the development of psychopathology and peer relationships in early childhood, which have implications for research into, as well as the prevention of, children’s behavioral and emotional problems. First, unlike behavioral or conduct problems, which have their onset in early childhood, and may be stable or even decrease in elementary school (Keenan & Shaw, 2003), symptoms of depression increase over the course of elementary school (Zahn-Waxler et al., 2008). Our study signals the need to consider the influence of early conduct problems and the resultant peer rejection as a possible explanatory factor for why such depressive problems in young children tend to increase from the early elementary school period onwards. Second, our sample was comprised of kindergarteners. It showed that already in this first phase of formal education, conduct problems predict peer rejection, with demonstrable consequences in terms of the development of depressive symptoms. This signals the need to start identifying and preventing conduct problems and their resulting adverse social consequences in kindergarten. This is not only because conduct problems may become intrinsically linked to poor peer relations, thereby explaining their further development, but also because the early identification of and intervention in this process may forestall the early development of depressive symptoms.
References


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