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Sex differences and parallels in the development of externalizing behaviours in childhood: Boys' and girls' susceptibility to social preference among peers

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ABSTRACT

This study examined whether being poorly preferred by peers may partially explain why boys with oppositional behaviour develop more conduct problems than girls. Children from the general Dutch population attending regular elementary schools ($N = 759$, 50.3% boys) were followed annually from age 7 to 10 years. Teachers-rated externalizing behaviour and peer-nominated social preference was assessed across four waves. Autoregressive cross-lagged models indicated that oppositionality predicted increases in conduct problems. Above and beyond this direct link, oppositionality predicted low social preference in subsequent years, which in turn predicted an increase in conduct problems. In this latter pathway, sex differences were found. That is, oppositional boys were as likely as oppositional girls to show an increase in low social preference one year later. However, boys who had low social preference scores showed stronger increases in conduct problems one year later, compared to girls who had low social preference scores. Hence, developmental models of externalizing behaviour should consider the possible sex-differential impact of troublesome peer-relationships to understand the development of milder to more severe externalizing behaviours.

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Children who engage in externalizing behaviour are at risk for various adverse developmental outcomes, such as criminality, psychopathology and substance dependence (Colman et al., 2009; Fergusson, Boden, & Horwood, 2009). This risk is particularly apparent for children whose behaviour escalates from initial rather mild externalizing problems, such as oppositional behaviour, to more

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severe conduct problems that inflict harm on others. Studies focused on the developmental unfolding of externalizing behaviour suggest a developmental pathway in which oppositional behaviour predicts subsequent conduct problems (Drabick, Bubier, Chen, Price, & Lanza, 2011; Rowe, Costello, Angold, Copeland, & Maughan, 2010). Furthermore, boys generally show higher levels of conduct problems compared to girls. However, sex differences in ratios of oppositionality are far less pronounced (Achenbach & Rescorla, 2001; Lahey et al., 2000; Van Lier, Van der Ende, Koot, & Verhulst, 2007). This may suggest that some underlying factors that explain the developmental association between oppositional behaviour and conduct problems influence boys more than girls. Being poorly liked by peers (i.e., low social preference) may be one such factor (Van Lier & Koot, 2010). In the present study, using a general population sample of 759 Dutch elementary school children who were followed annually from 7 to 10 years of age, we investigated whether sex differences in the susceptibility to experiencing low social preference among peers could be one potential pathway by which oppositional boys may develop more conduct problems than oppositional girls.

Oppositional behaviour in childhood can (among other negative outcomes) be an early marker for the development of conduct problems (Drabick et al., 2011; Rowe et al., 2010). However, there are marked differences in the boy-girl ratio of oppositional behaviour compared to that of conduct problems. Specifically, studies have reported that sex differences in levels of conduct problems, with boys having substantially more problems than girls, are more outstanding than those in oppositional behaviour in large community samples in the U.S.A. (Achenbach & Rescorla, 2001; Lahey et al., 2000) as well as in Europe (Van Lier et al., 2007). Given that oppositionality predicts conduct problem development and given that boys have higher levels of conduct problems than girls while levels of oppositionality are fairly similar, this may indicate that certain underlying factors that explain the developmental association between oppositionality and conduct problems may influence boys more than girls.

One factor that may, at least in part, explain why oppositional boys may develop more conduct problems than oppositional girls, may be a potential sex-difference in their susceptibility to low social preference. Children who are poorly preferred among peers are typically defined in terms of sociometric ratings as children who receive few 'liked most' nominations and many 'liked least' nominations from their peers (Coie, Dodge, & Coppotelli, 1982). Exposure to social evaluations by peers increases when children enter formal schooling and have to function in the presence of age-matched peers for a large proportion of the day. Research has shown that oppositional behaviour may evoke poor social preference and being disliked by peers (Burke, Waldman, & Lahey, 2010; Carlson, Tamm, & Gaub, 1997; Vitaro, Pedersen, & Brendgen, 2007). The early elementary school period is also the period of time in which the first conduct problems typically arise (Loeber, Green, Lahey, Christ, & Frick, 1992). Exposure

to low social preference has been found to add to the prediction of early-onset conduct problems (Miller-Johnson, Coie, Maumary-Gremaud, & Bierman, 2002). Together, these findings indicate that low social preference may act as a connecting factor explaining, at least in part, the progression from oppositional behaviour to conduct problems.

Not only may low social preference be one of the potential factors that may underlie the development of oppositionality to conduct problems, it may also explain, in part, why boys show higher levels of conduct problems than girls. For example, boys are more status-oriented than girls amongst peers (Rose & Rudolph, 2006). Therefore, boys may be more focused on obtaining dominance and control in their relationships with peers than girls (Rose & Rudolph, 2006), and may more often use aggression (which is part of the umbrella term 'conduct problems') to defend their group status (Geary, Byrd-Craven, Hoard, Vigil, & Numtee, 2003). In addition, boys may cope differently with negative peer experiences than girls (Rose & Rudolph, 2006). Disliked children have been found to be more biased in their attribution of hostile intent to peers when compared to children who are liked by their peers (Lansford, Malone, Dodge, Pettit, & Bates, 2010). Such attribution biases have been found to predict conduct problems in boys that are not highly preferred among their peers, but less so in poorly preferred girls (Schultz, Izard, & Ackerman, 2000). Finally, forceful responses to being disliked, like coercive exchanges with peers, are more often seen in boys than in girls (Snyder et al., 2008). Overall, these sex differences in the meaning of poor peer-group status and in coping style as a response to such experiences suggest that boys may be more susceptible to the effects of low social preference and may be more likely to respond with conduct problems to it than girls. In line with this, studies have shown that negative peer experiences affect boys' externalizing behaviour development more than girls' externalizing behaviour development (Moffitt, Caspi, Rutter, & Silva, 2001; Van Lier & Koot, 2010). Thus, although boys and girls may both experience low social preference when they show oppositional behaviour and although boys and girls may both respond to negative peer experiences with increases in conduct problems, the magnitude of the predictive link from social preference to conduct problems may be stronger for boys.

Despite the plausibility that susceptibility to low social preference could be one potential pathway by which oppositional boys may develop higher levels of conduct problems compared to girls, to our knowledge no prior study explored this possibility longitudinally. Therefore, this study addressed two research questions and four hypotheses. First, we investigated whether the progression of oppositional behaviour to conduct problems in children that attend general elementary schools runs, in part, via experiences of low social preference. We hypothesized that over the first four years of elementary school, oppositional behaviour will add to the prediction of conduct problems, above and beyond existing conduct problems (hypothesis 1). We also hypothesized that above

and beyond this direct link, oppositional behaviour will predict subsequent increases in experiences of low social preference, which in turn will predict increases in levels of conduct problems (hypothesis 2). Second, we examined whether this indirect developmental pathway from oppositionality to conduct problems via low social preference varies by sex. We hypothesized that boys and girls with oppositional behaviour will be equally likely to experience low social preference (hypothesis 3), and that boys in particular will increase in their engagement in conduct problems as a reaction to a poor social standing in the peer group (hypothesis 4).

Method

Participants

In the early summer of 2004, 825 kindergarten children from 30 elementary schools located in two urban areas and one rural area in the Netherlands were targeted for inclusion in the present study. The study was approved by the ethic review boards of the Erasmus University Rotterdam and the Vrije Universiteit Amsterdam. Children were eligible for inclusion if they moved on from kindergarten to first grade ($n = 750$) or if they entered a participating classroom ($n = 111$; total $N = 861$) in 2005. Signed parental informed consent for participation in the study was obtained for 88% of the children, resulting in a total sample of 759 children (50.3% boys, mean age 7.03 years ($SD = .47$)) in first grade. Fifty-eight percent of the children were from a Dutch/Caucasian background, 11% were Moroccan, 10% were Turkish, 7% were Surinamese, 5% were from the Netherlands Antilles, and 9% were from other ethnical backgrounds. Furthermore, 30% of the children came from low socioeconomic status (SES) families, which is largely comparable to the general Dutch population (32% low SES; Statistics Netherlands, 2013).

Oppositional behaviour, conduct problems and low social preference were assessed annually from first to fourth grade of elementary school. During the follow-up period, assessments of some children were incomplete due to retention, moving to another school, or absence during the measurement. Data of 91.3% of the children was complete for at least two measurement moments, 77.2% had at least three complete assessments. Children with missing data did not differ from children with complete data with respect to sex distribution. However, children with missing values had higher mean levels of oppositional behaviour ($F(1, 757) = 16.93, p < .001, \eta^2 = .02$) and conduct problems ($F(1, 757) = 32.31, p < .001, \eta^2 = .04$) and lower social preference scores ($F(1, 755) = 33.27, p < .001, \eta^2 = .04$), compared to children with complete data. Approximately two-thirds of the children had received a preventive intervention targeting problem behaviour (Good Behavior Game; Barrish, Saunders, & Wolf, 1969), which was implemented in grades 1 and 2. Given that testing for intervention effects was not an objective of this study, all estimates were controlled for intervention effects.

Measures

Teacher ratings of oppositional behaviour and conduct problems

Externalizing behaviour was assessed with the Problem Behaviour at School Interview (PBSI; Erasmus Medical Center, 2000). The PBSI is a 42-item face-to-face interview, in which teachers rated pupils' behaviour on a five-point Likert-scale ranging from 0 (never applicable) to 4 (often applicable). Trained research-assistants interviewed teachers face-to-face. Oppositional behaviours were assessed by 7 items (range α over the assessments = .89–.91; e.g., 'disobeys teacher's instructions', 'is stubborn', 'argues'). Conduct problems were assessed by 12 items (range α over the assessments = .90–.93; e.g., 'attacks other children', 'steals', 'destroys others' property'). Item scores per scale were averaged, resulting in scales ranging from 0 to 4 for both oppositional behaviour and conduct problems.

Low social preference

Social preference scores were obtained through peer-nominations. Peer-nominations were administered at the participants' school by trained research-assistants. The protocol was partially based on the procedure described by Coie et al. (1982). Children were asked to nominate an unlimited number of classmates whom they liked most and whom they liked least. The 'liked most' scores of each child were subtracted from his or her 'liked least' scores to obtain a score in which the high end reflects low social preference. This score was divided by the total number of children in the classroom minus one (children could not nominate themselves). Scores ranged from -1 (highest social preference) to 1 (lowest social preference).

Child's sex

Children's sex was dummy coded as 0 = male, 1 = female.

Household socioeconomic status (SES)

SES was measured through the target child's parental occupation in first grade and was dummy coded as 0 = medium to high SES, 1 = low SES.

Statistical approach

Autoregressive cross-lagged models were used to test our hypotheses (Jöreskog, 1970). Models were fitted in Mplus 7.31, Los Angeles, California (Muthén & Muthén, 1998–2015). Autoregressive paths for oppositional behaviour, conduct problems and low social preference from grades 1 to 4 model the stability within constructs. Cross-lagged, cross-time paths test for developmental links between the constructs. Maximum likelihood estimation with robust standard errors (MLR-estimator) was used to account for the non-normal distribution of the data. We accounted for clustering of data within schools by

using a sandwich estimator (Williams, 2000). Missing data were handled using Full Information Maximum Likelihood (FIML) estimations. The Satorra-Bentler chi-square difference test was used to compare nested models (Satorra, 2000). Model fit was determined via the Comparative Fit Index (CFI; with values $\geq .95$ indicating good fit and values $\geq .90$ indicating acceptable fit), the Root Mean Squared Error of Approximation (RMSEA; with values $\leq .06$ being acceptable) and the Standardized Root Mean Squared Residual (SRMR; with values $\leq .08$ being acceptable; Hu & Bentler, 1998).

We first tested the developmental links between oppositionality, low social preference and conduct problems. To this end, we departed from a baseline model in which all possible autoregressive and cross-lagged paths, in addition to cross-sectional correlations, between our constructs of interest were estimated. For reasons of parsimony, we then tested whether we could constrain recurring paths to be equal over time and whether non-significant paths could be trimmed. We used our most parsimonious model to investigate whether oppositional behaviour predicted increases in conduct problems in the following school-year (hypothesis 1), and whether the development from oppositionality to conduct problems ran via low social preference (hypothesis 2). The significance of the indirect pathway from oppositional behaviour to conduct problems via low social preference was estimated using the 95% confidence interval (95% CI) bootstrap resampling method ($n = 10,000$) for complex (i.e., clustered) data (Asparouhov & Muthén, 2010).

We then investigated our second research question, i.e., whether the developmental links between oppositionality and social preference were similar for boys and girls (hypothesis 3), and whether the prospective association between social preference and conduct problems was more pronounced in boys (hypothesis 4). To this end, a series of multiple-group models (boys vs. girls) were fitted, in which the paths from oppositional behaviour to conduct problems via low social preference were compared between boys and girls. The difference between the indirect pathways from oppositional behaviour to conduct problems via exposure to low social preference for boys and girls was estimated using the Wald chi-square test of parameter equalities. In all models, all parameter estimates were controlled for intervention status and low SES.

Furthermore, an alternative pathway predicting sex-differences in conduct problems might be a developmental pathway running from low social preference, to oppositional behaviour first, and to conduct problems next. Therefore this alternate pathway was explored and potential sex-differences in this alternative developmental pathway were tested.

Results

Descriptive statistics

Table 1 shows that boys scored higher on levels of oppositional behaviour and conduct problems and had lower social preference scores than girls at all

Table 1. Means and standard deviations of oppositional behaviour, conduct problems and low social preference for boys and girls.

	Boys		Girls		Test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	η^2
<i>Oppositional behaviour</i>						
Grade 1	1.09	.89	.73	.69	31.55**	.06
Grade 2	1.01	.85	.77	.77		
Grade 3	1.02	.85	.70	.69		
Grade 4	1.25	.97	.77	.75		
<i>Conduct problems</i>						
Grade 1	.74	.64	.44	.47	59.08**	.11
Grade 2	.63	.62	.38	.50		
Grade 3	.68	.64	.38	.48		
Grade 4	.76	.73	.32	.42		
<i>Low social preference</i>						
Grade 1	-.01	.26	-.13	.23	30.87**	.06
Grade 2	-.05	.31	-.22	.25		
Grade 3	-.09	.30	-.19	.28		
Grade 4	-.11	.32	-.20	.29		

Notes: Test statistic from repeated measures ANOVA. η^2 = eta squared.

** $p < .001$.

time-points. Effect sizes suggest that sex differences in oppositional problems ($\eta^2 = .06$) were smaller than sex differences in conduct problems ($\eta^2 = .11$).

Table 2 shows the correlations between the study variables. Concurrent as well as longitudinal correlations between oppositional behaviour, social preference and conduct problems were significant for boys and girls.

Developmental pathways from oppositionality to conduct problems, via low social preference

To test whether low social preference could explain the development from oppositional behaviour to conduct problems, a series of nested models was fitted. Results for model fitting for the group in total are in the upper part of Table 3. As can be seen in Table 3, constraining recurring autoregressive and lagged paths to be equal over time and trimming non-significant paths did not worsen model fit. Therefore, the latter model formed the basis for our interpretation and additional analyses.

Results in Figure 1 indicate that in accordance with our hypotheses, oppositional behaviour predicted increases in conduct problems the next school-year for the group in total (hypothesis 1). Above and beyond this direct link, oppositional behaviour predicted low social preference in the next school-year, which in turn predicted increases in conduct problems one school-year later (hypothesis 2). The indirect pathways from oppositional behaviour to conduct problems via low social preference were significant ($B = .03$, $SE = .01$, 95% CI of $B = .016-.040$, $\beta = .04$). Furthermore, the alternative pathways from low social

Table 2. Correlations between study variables for boys (below diagonal) and girls (above diagonal).

	1	2	3	4	5	6	7	8	9	10	11	12
1. Oppositional grade 1	–	.50	.48	.27	.80	.43	.46	.22	.39	.41	.32	.34
2. Oppositional grade 2	.50	–	.59	.46	.48	.83	.53	.34	.32	.37	.41	.30
3. Oppositional grade 3	.51	.55	–	.47	.52	.53	.79	.34	.30	.31	.40	.29
4. Oppositional grade 4	.44	.59	.56	–	.31	.41	.39	.75	.25	.27	.28	.31
5. Conduct grade 1	.83	.49	.45	.38	–	.50	.59	.33	.38	.41	.33	.27
6. Conduct grade 2	.48	.84	.48	.49	.55	–	.58	.38	.32	.38	.40	.30
7. Conduct grade 3	.45	.47	.83	.56	.50	.48	–	.35	.30	.39	.39	.20
8. Conduct grade 4	.39	.52	.53	.86	.42	.52	.61	–	.29	.33	.25	.29
9. LSP grade 1	.47	.40	.30	.41	.49	.37	.35	.41	–	.59	.47	.49
10. LSP grade 2	.44	.41	.37	.46	.45	.43	.42	.50	.62	–	.60	.54
11. LSP grade 3	.37	.37	.35	.44	.38	.37	.43	.54	.57	.62	–	.69
12. LSP grade 4	.29	.31	.30	.44	.26	.28	.40	.49	.55	.57	.68	–

Notes: Oppositional = oppositional behaviour. Conduct = conduct problems. LSP = low social preference. All correlation coefficients are significant at $p < .05$.

Table 3. Fit statistics and model comparisons for nested models.

Model	Fit					Difference tests			
	χ^2	df	CFI	SRMR	RMSEA	Comparison	$\Delta\chi^2$	Δdf	p
<i>1. Developmental links between oppositional behaviour, low social preference and conduct problems</i>									
1a. Base model	148.05	28	.95	.06	.08				
1b. Time-constraints + trimmed model	160.51	47	.95	.07	.06	1a vs. 1b	21.04	19	.33
<i>2. Test for sex differences</i>									
2a. Boys vs. girls	256.06	94	.95	.07	.07				
2b. Boys = girls for non-hypothesized paths	260.55	100	.95	.08	.07	2a vs. 2b	4.62	6	.59
2c. Boys = girls for oppositionality to LSP	259.73	101	.95	.08	.06	2b vs. 2c	.51	1	.47
2d. Boys = girls for LSP to conduct problems	264.87	102	.95	.08	.07	2c vs. 2d	4.67	1	.03

Note: LSP = low social preference.

preference predicting oppositional behaviour first and conduct problems next, were also significant ($B = .04$, $SE = .02$, 95% CI of $B = .007-.081$, $\beta = .02$). Note that, given that all pathways were tested at once, in one model, potential covariance

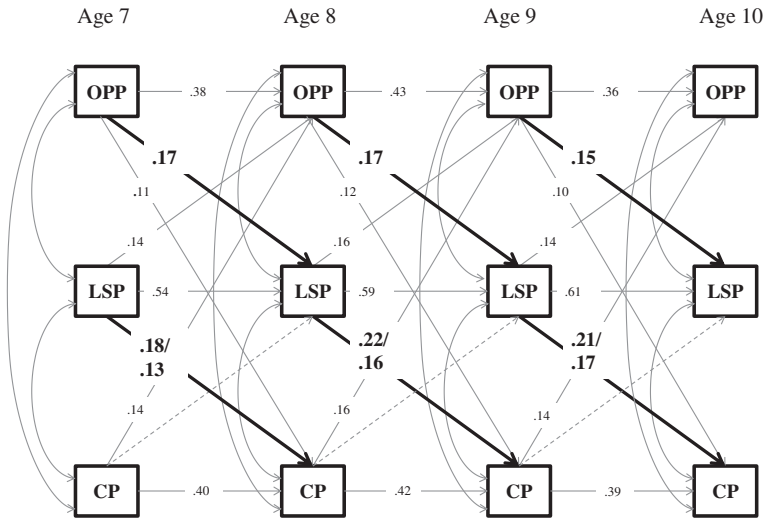


Figure 1. The development of oppositional problems to conduct problems via low social preference.

Notes: Single entries reflex sex-invariant standardized regression coefficients. Double entries reflect regression coefficients for boys (top) and girls (bottom). OPP = oppositional behaviour. CP = conduct problems. LSP = low social preference. All paths were significant at $p < .05$. Double arrowed lines are cross-sectional correlations. Grey lines reflect control paths above and beyond which the paths from oppositional behaviour to low social preference to conduct problems are found. Dashed lines reflect non-significant paths.

between the developmental pathways is taken into account. Hence, the developmental pathway running from oppositional behavior to conduct problems via social preference is statistically controlled for the alternate pathway (and vice versa) and potential overlap between these pathways is taken into account.

Sex differences in developmental pathways

To test our hypotheses on sex-differences, multiple-group models (boys vs. girls) were fitted (see Table 3, lower part). We started by investigating whether developmental pathways that were not part of our hypotheses were sex-invariant (i.e., all autoregressive and lagged pathways with the exception of the pathway from oppositionality to low social preference to conduct problems). Compared to a model in which all coefficients were estimated freely for boys and girls, restraining the paths that were not part of our hypotheses to be equal between boys and girls did not worsen model fit.

Next, we investigated our hypothesis that boys and girls with oppositional behaviour would be equally likely to experience low social preference (hypothesis 3) and our hypothesis that the association between low social preference and conduct problems would be stronger boys compared to girls (hypothesis 4). Results in the lower part of Table 3 show that the paths from oppositionality

to low social preference in subsequent grades were sex-invariant. However, the significant decrease in model fit when the paths from low social preference to conduct problems were constrained to be sex-invariant, indicates that they are not similar for boys and girls (hypothesis 4). Comparisons of the magnitude of the complete indirect pathways from oppositionality to conduct problems via low social preference revealed that these indirect pathways were different for boys and girls ($\chi^2(1) = 5.19, p < .05$) and were somewhat stronger for boys ($B = .03, SE = .01, 95\% \text{ CI of } B = .015-.041, \beta = .04$) compared to girls ($B = .02, SE = .01, 95\% \text{ CI of } B = .009-.028, \beta = .03$). Standardized estimates for the final model are in Figure 1. The results show that the standardized regression coefficients of low social preference predicting subsequent conduct problems were stronger in magnitude for boys compared to girls. Note that, given that we found no sex differences in developmental pathways other than the path from social preference to conduct problems, the developmental pathway from low social preference to oppositional behaviour first and conduct problems next, was sex-invariant.

Discussion

The development from oppositional behaviour to more severe conduct problems that pose a threat to others signals a serious aggravation of troublesome behavioural tendencies of a child. The results of this study suggest that negative peer-experiences, such as being poorly preferred by peers, can to some extent explain this progression in behavioural problems during the elementary school-years, particularly for boys. Specifically, this study found that oppositional behaviour predicted a subsequent poor appraisal by peers and that this poor social preference, in turn, predicted the development of conduct problems. The latter link, from social preference to subsequent conduct problem development, was stronger for boys than for girls. Thus, while both boys and girls may evoke poor preference among peers when exhibiting oppositional behaviour, and while both boys and girls may respond to this negative peer-experience with conduct problems, boys were more likely than girls to engage in such responses. This sex-differential developmental pathway was found above and beyond an alternative pathway predicting conduct problem development (i.e., the development from low social preference to oppositional behaviour first, and conduct problems next), that was sex-invariant and therefore held for the group in total.

Our results support previous research that has demonstrated predictive links from oppositional behaviour to conduct problem development (Rowe et al., 2010). We extended these findings by using a conservative design in which all constructs were assessed in parallel over several years, which allowed us to effectively study developmental change in a general population sample. More importantly, our study showed that in order to understand the development from oppositionality to increases in conduct problems, experiences of low social

preference should be considered as one of the explanatory factors. However, it also needs to be acknowledged that the magnitude of our predictive links and of the sex difference that we found were small. This suggests that, in addition to poor social preference, many other (personal and social-relational) factors that were not investigated in the present study likely account for the escalation of behavioural problems in elementary school children, and that many other factors may explain why particularly boys with oppositional behaviour may be prone to develop more severe conduct problems compared to girls.

The onset of the development of conduct problems is expected to occur during the early elementary school period (Loeber et al., 1992), which is also the period in which children are challenged to build satisfying relations with peers (Vitaro, Tremblay, & Bukowski, 2001). Our results suggest that it is the failure to build such satisfying relationships with peers that may – at least to some extent – explain why children with oppositional behaviour develop increasingly more conduct problems. Specifically, we found that across middle childhood (ages 7–10 years) poor preference among peers is evoked by the oppositionality of the child, not by existing conduct problems. This may imply that in the early elementary school-period, conduct problems might be a response to being poorly liked among peers rather than a precursor of low social preference. Note that we found that oppositionality was both a precursor and a consequence of poor preference among peers. In fact, we found that poor social preference predicted an increase in oppositional behaviour in the next year, which in turn predicted an increase in conduct problems one school-year later. Together, these findings paint a picture of a downward spiral in which a child's negativistic behaviour decreases its appraisal among peers, which subsequently increases its negativistic behaviour, which, in turn, both add to the development of conduct problems. On a more positive note, this also indicates that by interrupting this downward spiral through intervening in a situation where a child becomes (increasingly more) less liked relative to liked, one might decrease the development of both oppositional behaviour as well as conduct problems.

Our study moves beyond previous research on the developmental links between children's social standing among peers and externalizing behaviour in school-children by investigating two different, albeit related, types of externalizing problems (Ladd, 2006; Vitaro et al., 2007). Our results suggest a differential relation between low social preference and externalizing behaviour as a function of the behavioural difficulties exhibited by the child. Oppositional, negativistic and deviant behaviour at school likely results in poor relations with peers, while both oppositional behaviour and conduct problems may increase as a consequence of negative peer-relations in the early years of elementary school.

In addition, our results suggest that it is the higher susceptibility to poor social preference among boys, compared to girls, that – at least to some extent – explains why boys develop higher levels of conduct problems than girls. Our findings are in line with previous research that demonstrated that poor

preference tends to influence the lives of boys in particular (Moffitt et al., 2001), and underline that potential sex differences in the response to or meaning of low social preference need to be considered to understand the aggravation of externalizing behaviour in childhood. However, our findings by no means imply that low social preference is the only connecting factor between oppositional behaviour and subsequent conduct problems. Low social preference only explained part of the developmental pathway from oppositionality to subsequent conduct problems two school-years later. Many other factors, such as harsh parenting or inconsistent disciplining can potentially explain the aggravation from milder to more severe externalizing problems (Burke, Pardini, & Loeber, 2008; Moffitt et al., 2001). That is, in addition to low social preference, oppositional children may evoke harsh parenting and inconsistent disciplining, which subsequently may predict conduct problem development. In addition to low social preference, inconsistent disciplining may also explain why boys develop more conduct problems than girls, because it has been found that particularly boys may be susceptible to inconsistent disciplining in that their behavioural problems increase (Moffitt et al., 2001). These, and other possibilities, should be investigated in future studies.

In addition, rather than being developmentally related, it is possible that a confounding fourth variable may have connected our constructs of interest. For example, it has been found that the same genetic factors or the same temperamental traits may underlie the development of oppositional behaviour, low social preference as well as conduct problems (Brendgen et al., 2011; Frick & Morris, 2004). However, note that the fact that we took within-time correlations of our three constructs into account and that developmental paths were found above and beyond these within-time correlations, partially resolves this issue. That is, although we did not specifically test for potential confounding by, for example, temperament or genetic influences, the covariance between oppositionality, low social preference and conduct problems (which might be explained by underlying genetic effects or temperamental traits) within a school-years is controlled for in our model. Like others have recognized (Loeber, Green, Keenan, & Lahey, 1995), knowledge about factors that enhance the development from oppositional behaviour to conduct problems and to whom they apply most, could significantly improve interventions aimed at preventing and decreasing the development of conduct problems. Our results suggest that low social preference may be one of the key factors for intervention programs aimed at preventing or decreasing the development of conduct problems as well as classroom oppositional behaviour.

The significance of low social preference in impacting particularly boys, as found in this study, coincides with results from other studies focused on low social preference. For example, interventions focused on prosocial strategies in order to gain social dominance, a goal that is highly valued by boys in particular, may prevent coercive exchanges between peers and may help boys that

use misconduct to obtain a higher group-status with using positive alternative behavioural strategies (Dishion & Tipsord, 2011; Geary et al., 2003). Our findings thus underscore the importance of preventing conduct problem development by intervening in situations in which children start to reject and dislike classmates and suggest that boys may benefit most from such preventive programs with regard to conduct problem development.

Several limitations need to be considered, when interpreting our findings. First, we used a general population sample, but schools were not randomly drawn. Although the percentage of children from low SES families was in accordance with the general Dutch population, we cannot be certain that the results generalize to the entire Dutch population. Second, we used teacher reports on children's oppositionality and conduct problems. Teachers may not be aware of these behaviours outside the school context. However, previous studies have indicated that teachers are valid informants on externalizing behaviour (Hart, Lahey, Loeber, & Hanson, 1994). Moreover, longitudinal studies have found that teacher-reported conduct problems are related to multiple social and health impairments in adult life (Colman et al., 2009; Fergusson et al., 2009), indicating that teachers are significant informants for these types of behavioural problems. However, as teacher-reported conduct problems are often specific to the school situation (Fergusson et al., 2009), our results may not generalize to other contexts such as children's homes. In addition, teachers may be unaware of the full range of children's externalizing behaviours and particularly conduct problems, because children likely aim to hide these type of behaviours from the teacher. Furthermore, influences of peers as assessed in this study were limited to peers within the classrooms, while poor relations with age-mates outside the classroom may also affect children's behaviour. Third, we focused on externalizing behaviour and social preference till fourth grade, when children were on average 10 years of age. Our results thus hold for children in middle childhood and may not extend to other developmental periods (e.g., adolescence). Fourth, children with missing values had higher levels of externalizing behaviour and lower social preference scores than children with complete data. Therefore, we cannot exclude the possibility of confounds due to possible effects of differential attrition. Finally, it is important to note that our findings only scratch the surface of the role of negative peer experiences and children's sex in externalizing behaviour development. Important biologically, culturally and developmentally based sex differences in (the meaning of) both externalizing behaviour and peer relations may underlie our findings (Moffitt et al., 2001; Rose & Rudolph, 2006).

Despite these and possible other limitations, our study suggests that research on externalizing behaviour should consider the potential differential impact of troublesome peer-experiences on boys vs. girls, in order to understand its developmental unfolding and aggravation in severity. Furthermore, our results have important implications for the identification of children who may benefit from intervention and indicate multiple pathways for preventing or interrupting the

chain of negative behaviours. First, oppositional behaviour should be addressed as early as possible, preferably directly after the transition to formal schooling, as this is the period when children have to function in the formal setting of a classroom and start evaluating whether they like or dislike each other. As this study showed, oppositional behaviour is a strong predictor of poor appraisal by peers in this period. Second, teachers and other professionals should be particularly aware of those children with oppositional behaviour who become (increasingly) disliked by peers. Teachers should not discard the significance of children being relatively less liked and more disliked by their peers in the earliest elementary school-years, as this poor appraisal by peers likely becomes stable throughout the school-years and predicts an aggravation of externalizing behaviour. Third, interventions should focus on teaching children to cope with negative peer-experiences other than with aggression and other conduct problems, for example by teaching children prosocial strategies in order to gain social preference from peers. Such interventions may particularly address boys' externalizing behaviours and associated peer relationship problems and may therefore be the preferred action to prevent them from entering a pathway towards developing increasingly more severe externalizing behaviours.

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