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# Prosocial and antisocial behavior in preadolescence: Teachers' and parents' perceptions of the behavior of girls and boys

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There has been recent emphasis on the importance of investigating prosocial and antisocial behavior simultaneously owing to doubts about whether examining one automatically gives information about the other. However, there has been little empirical research into this question. The present study (based on a large population sample of preadolescents,  $N = 2,230$ ) simultaneously examines prosocial and antisocial behavior, explicitly including the possibility that children might show prosocial behavior according to one informant and antisocial behavior according to another. When parents and teachers agreed in their judgments, children were distinctly profiled and differed clearly in effortful control, intelligence, academic performance, and several peer nominations and family characteristics. The correlates were more rater-specific for children that were prosocial according to one informant and antisocial according to the other informant. Teachers and parents used different context-dependent criteria for judging children to be prosocial or antisocial. Academic performance and peer relations were related to the teacher's judgment of prosocial and antisocial behavior. By contrast, children's being problematic at home (and thus causing stress for the parents) was related to the parents' judgment.

Keywords: adolescent development; antisocial behaviour; childhood development; prosocial behaviour; social perception

An important reason for examining prosocial and antisocial behavior at a young age is to understand who will develop problem behavior in later stages of life and who will not. Such knowledge is needed for prevention and intervention, and can also contribute to developmental theories of pro- and antisocial behavior (Dodge, Coie, & Lynam, 2006; Eisenberg, Fabes, & Spinrad, 2006). The most obvious sources of information are children, parents, peers, and teachers. We focused this study on teachers and parents. However, informants are bound to differ. Teachers and parents have different perceptions and interact with children in different situations, while different situations often provoke different behavior (Donker, 2006).

One of the most relevant differences between teachers and parents is probably their ability to make comparative judgments. Teachers observe great variation in pro- and antisocial behavior among their pupils. Parents usually lack this experience. However, parents have knowledge of children's behavior in a wider range of settings than the classroom. These differences can easily result in different scores when teachers and parents are asked to report on children's pro- and antisocial behavior. Thus, it is likely that multiple informants provide a more complete picture than a single informant (Achenbach, McConaughy, & Howell, 1987; Caprara, Barbaranelli, & Pastorelli, 2001; Caprara & Pastorelli, 1993; Rutter, Giller, & Hagell, 1998).

One way of dealing with multiple informant data is to focus on the level of agreement and disagreement. Because teachers and parents observe children in different settings, agreement between the informants could indicate consistency across settings. Such consistency is considered to be an important characteristic of the persistence of behavior over time. Children who show antisocial behavior in more than one setting are more at risk of persisting in antisocial behavior than those whose antisocial acts only occur in one setting (Loeber, 1982; Moffitt, Caspi, Harrington, & Milne, 2002). The same may hold for prosocial behavior: children who show prosocial behavior in more than one setting are more likely to persist in such behavior than those whose prosocial acts are context specific (Veenstra, 2006; Vitaro, Gagnon, & Tremblay, 1991). If teachers and parents agree on children's antisocial behavior, these children are expected to be more at risk than children about whom they disagree.

To our knowledge, the amount of agreement and disagreement between teachers and parents has not been investigated using data on both pro- and antisocial behavior. There has been a call for studies investigating pro- and antisocial behavior at the same time. According to Fabes, Carlo, Kupanoff, and Laible (1999), studies are needed that concurrently examine pro- and antisocial development to account more adequately for social development. They argued, "To examine one set of behaviors without examining the other set presents a skewed and limited description of the complexity of adolescents" (p. 13). The aim of this study was to examine pro- and antisocial behavior concurrently using a large population sample

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of Dutch preadolescents ( $N = 2,230$ ) that allowed comparison of different informants and correlates. Given that there have been so few studies of the simultaneous assessment of pro- and antisocial behavior by teachers and parents, we focused on both descriptive and predictive factors. We performed a cluster analysis to determine whether the different informants perceived distinct groups of pro- and antisocial behavior. We examined to what extent the clusters differed on family (e.g., socio-economic status, parental stress), sociometric (e.g., peer acceptance and rejection), and individual characteristics (e.g., sex, effortful control, and academic performance). Finally, we addressed the question concerning the convergence and divergence of teacher and parent judgment, and possible differences in the context-dependent criteria for these judgments. For this purpose, we formulated the three hypotheses presented below.

### Hypotheses

In an increasing number of studies of children and adolescents, pro- and antisocial behavior have been examined concurrently as an outcome (Boxer, Tisak, & Goldstein, 2004; Carlo, Roesch, & Melby, 1998; Côté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002; Hawley, 2003a, 2003b; Hawley, Little, & Pasupathi, 2002; Kokko, Lacourse, & Vitaro, 2006; Krueger, Hicks, & McGue, 2001; McGinley & Carlo, 2007; Pakaslahti & Keltikangas-Järvinen, 2001; Persson, 2005, 2006; Rodkin, Farmer, Pearl, & Van Acker, 2000). The results of these studies reveal that prosocial children have a high level of well-being and are seen as popular, friendly, and academically competent, whereas low-social children (who were neither pro- nor antisocial) and antisocial children are more lonely, sad, and anxious, or even unpopular, unfriendly, and academically incompetent.

Some studies in which a person-centered approach was used provide evidence that some adolescents are prosocial at some times, but antisocial at other times (Hawley, 2003a; Hawley et al., 2002; Pakaslahti & Keltikangas-Järvinen, 2001; Rodkin et al., 2000). According to Hawley (2003a), such bi-strategic children are overall well-adapted. She argues that this Machiavellian approach entails the balancing of "getting along" and "getting ahead". A similar group of tough boys in the study by Rodkin et al. (2000) were seen as athletic, cool, and popular, but also as aggressive (see also Veenstra, 2006).

In most studies, a single informant was used to categorize the children, such as the children themselves (Hawley, 2003a; Hawley et al., 2002), peers (Pakaslahti & Keltikangas-Järvinen, 2001), or teachers (Rodkin et al., 2000). In the present study we used the judgments of different informants, namely, teachers and parents. When teachers and parents can form a definite judgment and agree on their profiled judgment of pro- and antisocial behavior of the child, then the pupils are likely to be extreme in one direction or the other. Such children must be very advantaged (prosocial) or disadvantaged (antisocial). Our *first hypothesis* was that the family, sociometric, and individual background would be most favorable for children who are perceived as prosocial by teachers and parents and least favorable for children who are perceived as antisocial by both informants. It was also expected that children who were perceived as neither prosocial nor antisocial (low-social) would have a more disadvantaged background than prosocial children and would be quite similar to antisocial children in some background characteristics (*second hypothesis*).

Disagreement by teachers and parents in their definite judg-

ments may be the consequence of different behavior of the child in school and at home (Kraemer et al., 2003). However, disagreement can also be due to differences in criteria used by teachers and parents. Evaluations are often based on major goals that are focal at the moment of evaluating (Dunning, 2001; Ferguson & Bargh, 2004; Lindenberg, 2006). Contexts have a strong influence on major focal goals (Cialdini & Goldstein, 2004; Shah & Kruglanski, 2003). For the teacher and the parents, the contexts and thereby the major goals differ greatly. For the teacher, a major focal goal is likely to be a smooth-running teaching process. What aids this is prosocial and what disrupts it is antisocial. For parents, a major goal is likely to be a harmonious family life, also a social process. Again, what aids this is prosocial and what disrupts it is antisocial. Our *third hypothesis* was thus that whether the pupil was a good learner or not would be related to the teacher's judgment of pro- and antisocial behavior; by contrast, whether the child was problematic or not at home (and thus a cause of stress for the parents) would be related to the parents' judgment. Furthermore, we expected that children who were liked by their peers (or who helped classmates) would be seen by teachers, but not necessarily by parents, as prosocial. By contrast, children who were disliked by their peers (or who bullied classmates) would be seen as antisocial by teachers, but not necessarily by parents.

## Method

### Sample

The study was part of the Tracking Adolescents' Individual Lives Survey (TRAILS), a prospective cohort study of Dutch preadolescents who will be measured biennially until they are at least 25 years old. TRAILS is designed to chart and explain the development of mental health and social development from preadolescence into adulthood. The TRAILS target sample involves preadolescent girls and boys living in five municipalities in the northern part of the Netherlands, including both urban and rural areas. It covers pro- and antisocial behavior, and employs multiple informants.

The present study involved the first assessment wave of TRAILS, which ran from March 2001 to July 2002 (De Winter et al., 2005; Oldehinkel, Hartman, De Winter, Veenstra, & Ormel, 2004). Of all children approached for enrollment in the study (i.e., children selected by the municipalities and attending a school that was willing to participate;  $N = 3,145$  children from 122 schools, with 90.4% of the schools responding), 6.7% were excluded because of incapability or language problems. Of the remaining 2935 children, 76.0% were enrolled in the study, yielding a sample size of 2230. Both the child and the parent consented to participate. The mean age of the children was 11.09 years ( $SD = 0.55$ ); 50.8% were girls; 10.3% were children who had at least one parent born in a non-western country; and 32.6% of children had a father and 37.9% a mother with a low educational level (i.e., a lower track of secondary education was the highest level attained). We did not find any nonresponse bias in our study for the estimation of the prevalence rates of psychopathology, including antisocial behavior. Boys, children from lower social strata, and children with worse school performance were somewhat more likely to belong to the nonresponse group (De Winter et al., 2005).

Well-trained interviewers visited one of the parents (preferably the mother: 95.6%) at home to administer an interview covering a wide range of topics, including the child's developmental history and somatic health, parental psychopathology, and care utilization. The parent was also asked to fill out a questionnaire. Children filled out questionnaires at school (in the classroom), under the supervision of one or more TRAILS assistants. In addition, intelligence and a number of biological and neurocognitive parameters were assessed individually (also at school). Teachers were asked to fill out a brief questionnaire for all children in their class who were participating in TRAILS. The measures that were used are described more extensively in the following sections.

### Measures

*Teachers as informants.* The Prosocial Behavior Questionnaire (PSBQ) contained 11 items with an internal consistency of .93. Seven of the eleven items were adapted from an earlier questionnaire on prosocial behavior (Tremblay, Vitaro, Gagnon, & Piché, 1992), and were supplemented with four items derived from a study on solidarity by Lindenberg (1998). All items captured spontaneous forms of prosocial behavior. Sample items are the following: "Shows sympathy for someone who has made a mistake", "Takes the interests of other children into account", "Apologizes when something goes wrong". A measure for antisocial behavior was obtained by using selected items from the Teacher's Checklist of Psychopathology (TCP). This checklist contains nine descriptions of behaviors. The descriptions on the checklist were based on the variables used to measure various behaviors in the Teacher's Report Form (TRF; Achenbach, 1991b). We used the descriptions for aggressive and rule-breaking behavior. The correlation between the two items was .64. The validity was assessed among 36 teachers for 103 children. Teachers completed the TRF and the TCP for the same children within three months. Pearson correlation coefficients were .69 and .58 for aggressive and rule-breaking behavior, meaning that there was a strong association between these measures from the TRF and TCP.

*Parents as informants.* We derived a scale for prosocial behavior based on three items of the Early Adolescent Temperament Questionnaire-Revised (EATQ-R; Ellis, 2002) and seven items of the Social Skills Rating System (SSRS; Gresham & Elliot, 1990). In order to focus on aspects comparable with those on the teachers' scale, we also focused on items that captured spontaneous forms of prosocial behavior, such as "Will congratulate or praise family members on accomplishments", "Will help the parent with household tasks without prompting", "If having a problem with someone, usually tries to deal with it right away". The internal consistency of the scale was .78. The corrected item-total correlation had a range from .38 to .53. Antisocial behavior was assessed using the Child Behavior Checklist (CBCL), which is one of the most commonly used questionnaires in current child and adolescent psychiatric research (Achenbach, 1991a; Verhulst & Achenbach, 1995). The CBCL contains a list of 112 behavioral and emotional problems. We measured antisocial behavior by combining the syndromes aggressive and rule-breaking behavior. Sample items of aggressive behavior are "is impudent, is cruel, is bullying". Sample items of rule-breaking behavior are "does not seem to feel guilty when having misbehaved, curses, steals". A score for antisocial

behavior was calculated by averaging the scores for aggressive behavior and rule-breaking behavior. The internal consistency of the scale for antisocial behavior was .90, with 35 items.

*Family characteristics.* The TRAILS database contains a number of variables for socio-economic status (SES): income level, educational level of both the father and the mother, and occupational level of each parent, using the International Standard Classification for Occupations (Ganzeboom & Treiman, 1996, 2003). SES was measured as the average of the five items (standardized). The scale captured 61.2% of the variance in the five items and had an internal consistency of .84. Missing values (e.g., when there was only one parent in the family) did not affect the association of this scale with other variables. The percentage of children that lived with the same parents from birth to preadolescence was 76.6. The 23.4% for whom this was not the case can be divided into children who had always lived with a single parent (4.6%), who underwent a divorce and lived with a single parent since then (10.4%), and who underwent a divorce and lived with a stepparent (8.6%). Parental stress was measured using the Parental Stress Index (Abidin, 1983; Loyd & Abidin, 1985), a scale with 24 items and an internal consistency of .94.

*Sociometric characteristics.* The number of nominations children received individually from their classmates with regard to "best friends" and "dislike" were used to create measures of peer acceptance and rejection. Children also received nominations for bullying, victimization, and helping. These measures were the aggregate of all the dyadic nominations a child received from others and were for that reason potentially highly reliable and valid (Newcomb, Bukowski, & Pattee, 1993). In order to take differences in the number of respondents per class into account, percentages were calculated, yielding scores from 0 to 1 (Veenstra et al., 2005, 2007).

*Individual characteristics.* Effortful control was assessed using the parent and the child version of the EATQ-R (Ellis, 2002). We used the child version. The EATQ-R is a 62-item questionnaire based on the temperament model developed by Rothbart and colleagues (Putnam, Ellis, & Rothbart, 2001). Effortful control is the capacity to voluntarily regulate behavior and attention (13 items,  $\alpha = .69$ ). To our knowledge, no test-retest data of the EATQ-R are currently available. Intelligence was assessed using two subtests, block design and vocabulary, of the Wechsler Intelligence Scale for Children - Revised (Silverstein, 1972). Academic performance was measured using a scale that contained five items from the teacher questionnaire on effort and achievement (e.g., on language and mathematics) with an internal consistency of .85.

### Analyses

Sex differences were examined by means of *t*-tests and associations between variables using Pearson correlations (variable-centered approach). We then performed a cluster analysis (person-centered approach) to determine whether the different informants perceived distinct groups of pro- and antisocial behavior. We implemented the SPSS version of hierarchical agglomerative clustering employing Ward's method and Euclidean distances. Ward's method, which constructs clusters by minimizing within-cluster sums of squares, has been found to pass on reasonable cluster solutions in empirical studies

(Sharma, 1996). To ensure equal weighting, all variables were standardized prior to analysis (a mean of 0 and a standard deviation of 1). Determining the number of clusters was particularly difficult since cluster analysis passes on clusters even when applied to unclustered data. To determine the number of clusters, we first looked at changes in the fusion coefficient to evaluate the results of the cluster analyses. Like all other hierarchical cluster methods, Ward's method is static. For this reason, we refined the solutions of the static method with iterative cluster analyses using the K groups method. As initial cluster centers we used the outcomes of Ward's method. To evaluate the internal validity of the different cluster solutions we looked at the homogeneity within the groups (Everitt, Landau, & Leese, 2001). The homogeneity index varies from 0 to 1, where a value of 1 indicates that the cluster is no more homogeneous than the data set before clustering, and 0 indicates that the cluster is perfectly homogeneous. A homogeneity index of below .75 is considered acceptable and below .50 is good (Jones & Harris, 1999). Because we used both hierarchical and iterative cluster analysis, we were able to check the stability of the cluster solution. If a certain solution is stable, hierarchical and iterative cluster analysis should produce virtually identical solutions.

To evaluate the external validity of the cluster analyses, we performed analyses of variance (with post hoc Scheffé tests) to investigate which clusters differed in family, sociometric, and individual characteristics.

## Results

### Descriptives

Table 1 contains means and standard deviations of pro- and antisocial behavior, family, sociometric, and individual characteristics, for boys and girls separately. Because SES was

based on a standardized score, the mean is close to 0. All means represent mean item scores (ranges: peer nominations, 0–1; antisocial behavior parents, 0–2; antisocial behavior teachers, 0–4; prosocial behavior, effortful control, and academic performance, 1–5; parental stress, 1–6; intelligence, 45–149).

Except for SES and family breakup, we found significant sex differences. There were also differences in pro- and antisocial behavior. According to both informants, girls scored higher on prosocial and lower on antisocial behavior than boys (Table 1).

Correlations between pro- and antisocial behavior are presented in the upper part of Table 2. With the teacher as informant, the correlation between pro- and antisocial behavior was  $-.42$  ( $p < .01$ ) for girls and  $-.52$  ( $p < .01$ ) for boys. With the parent as informant, the correlation between pro- and antisocial behavior was  $-.19$  ( $p < .01$ ) for girls and  $-.24$  ( $p < .01$ ) for boys. The correlations between prosocial and antisocial behavior with the teacher as informant were stronger than with the parent as informant (test to compare two independent correlations:  $z(992,1042) = -5.75$ ,  $p < .01$  for girls and  $z(934,1007) = -7.29$ ,  $p < .01$  for boys). The agreement between the two informants is lower for prosocial behavior ( $r = .15$  and  $.10$ ) than for antisocial behavior ( $r = .29$  and  $.33$ ). The difference between prosocial and antisocial behavior is significant for both sexes at  $p < .01$ . These modest correlations between informants are in line with the findings of other studies (see for an overview: Achenbach et al., 1987). In sum, the correlations between prosocial and antisocial behaviors within teachers are stronger than the correlations between parents and teachers regarding the same behavior.

SES was positively associated with prosocial behavior and negatively associated with antisocial behavior. Parental stress was negatively associated with prosocial behavior and positively associated with antisocial behavior. Positive correlations of a

**Table 1**

*Sex differences in prosocial and antisocial behavior, family, sociometric, and individual characteristics*

Variable	Info <sup>b</sup>	Girls			Boys			Difference <sup>a</sup>		
		M	SD	N	M	SD	N	T	df	p
Prosocial behavior	T	3.54	0.61	993	3.14	0.66	935	13.86	1884	< .01
Antisocial behavior	T	0.26	0.58	992	0.64	0.89	935	-10.73	1601	< .01
Prosocial behavior	P	3.53	0.52	1042	3.39	0.52	1007	6.09	2047	< .01
Antisocial behavior	P	0.21	0.18	1043	0.27	0.22	1012	-7.43	1962	< .01
Family characteristics										
SES	P	-0.03	0.78	1115	-0.07	0.82	1073	1.39	2186	.16
Family breakup <sup>c</sup>	P	23.9%		1132	22.9%		1098	0.36	2230	.55
Parental stress	P	1.71	0.71	1042	1.88	0.80	1006	-5.01	2003	< .01
Sociometric characteristics										
Peer acceptance	N	0.28	0.16	588	0.30	0.15	477	-2.33	1063	.02
Peer rejection	N	0.10	0.12	588	0.16	0.15	477	-6.89	887	< .01
Bullying	N	0.03	0.06	588	0.05	0.09	477	-9.60	744	< .01
Victimization	N	0.04	0.07	588	0.05	0.09	477	-2.25	890	.03
Helping	N	0.24	0.14	588	0.18	0.13	477	6.70	1063	< .01
Individual characteristics										
Effortful control	C	3.53	0.47	1037	3.47	0.49	1014	3.06	2049	< .01
Ac. performance	T	3.77	0.84	991	3.45	0.92	934	7.89	1888	< .01
Intelligence	W	96.27	14.79	1129	98.14	15.16	1092	-2.93	2219	< .01

<sup>a</sup> Degrees of freedom deviant from  $N - 2$  reflect test statistics adjusted for unequal variances.

<sup>b</sup> Information: T = Teacher; P = Parent; C = Child; N = Peer Nominations; W = WISC Test.

<sup>c</sup> Chi-square test for difference in family breakup.

**Table 2***Correlations with prosocial- and antisocial behavior for girls and boys*

	<i>Prosocial behavior (teacher)</i>		<i>Antisocial behavior (teacher)</i>		<i>Prosocial behavior (parent)</i>		<i>Antisocial behavior (parent)</i>	
	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>
Antisocial (Teacher)	-.42**	-.52**	—	—				
Prosocial (Parent)	.15	.10	.02	.01	—	—		
Antisocial (Parent)	-.23	-.26	.29	.33	-.19	-.24	—	—
<i>Family characteristics</i>								
SES	.27	.30	-.16*	-.25*	.02*	.11*	-.16*	-.24*
Parental stress	-.16	-.19	.15*	.24*	-.24	-.30	.72	.71
<i>Sociometric characteristics</i>								
Peer acceptance	.25	.18	.00**	-.18**	.11	.05	-.10	-.18
Peer rejection	-.28	-.33	.23	.31	.04	.15	.16	.14
Bullying	-.20	-.28	.25*	.39*	.11	.07	.01**	.14**
Victimization	-.16	-.10	.12	.14	.01	.01	.10	.02
Helping	.25*	.11*	-.09	-.19	.06	.14	-.04	-.12
<i>Individual characteristics</i>								
Effortful control	.16	.15	-.14	-.16	.04*	.14*	-.20	-.20
Ac. performance	.51	.51	-.31*	-.39*	.01	-.02	-.27	-.25
Intelligence	.25	.29	-.14	-.20	-.03	-.01	-.16	-.21

Correlations > |.12|:  $p < .01$ .Sex differences: \*\* $p < .01$ ; \* $p < .05$ .

characteristic with prosocial behavior were usually accompanied with negative correlations of that characteristic with antisocial behavior, and vice versa. Most associations were moderate, with as an exception the association between parental stress and antisocial behavior, which was .72 for girls and .71 for boys (Table 2).

The sociometric measures were mainly related to the judgment of the teacher. Peer acceptance and helping were positively related to prosocial behavior and negatively related to antisocial behavior, according to the teacher. For peer rejection, bullying, and victimization, it was the other way around.

Effortful control, academic performance, and intelligence were positively associated with prosocial behavior and negatively associated with antisocial behavior. Academic performance was strongly related to the teachers' perceptions of prosocial behavior ( $r = .51$  and  $.51$ ) and antisocial behavior ( $r = -.31$  and  $-.39$ ). Most correlations did not differ significantly for girls and boys.

### *Clusters of pro- and antisocial behavior*

We performed cluster analyses using the information from both teachers and parents. The changes in the fusion coefficient and the homogeneity index provided evidence for a six-cluster solution. The overall homogeneity of the six-cluster solution was .61, which is acceptable. Hierarchical and iterative cluster analyses produced virtually identical solutions. The six groups can be labeled as (a) consensual prosocial, (b) prosocial according to the teacher, (c) consensual low-social, (d) antisocial according to the parent, (e) antisocial according to the teacher, and (f) consensual antisocial. Note that we found no group that was only prosocial according to the parent. Table 3 gives the means of pro- and antisocial behavior for each informant, along with the percentage of children in each cluster. For three of the six clusters, teachers and parents disagreed about the behavior of the children. The second cluster contains children who are prosocial according to the teacher ( $M = 0.77$ ), but not according to parents ( $M = -0.69$ ); see Table 3. The fourth and the fifth clusters also display disagreement between the informants. This considerable divergence in the perceptions of informants

**Table 3**

*Teachers and parents as informants: Mean on the teacher and parent ratings of prosocial and antisocial behavior, number of cases, and the sex ratio per cluster (N = 1774)*

<i>Cluster</i>	<i>Prosocial</i>		<i>Antisocial</i>		<i>% cases</i>	<i>Sex ratio (boys:girls)</i>
	<i>Teacher</i>	<i>Parent</i>	<i>Teacher</i>	<i>Parent</i>		
Consensual prosocial	0.68	0.99	-0.45	-0.43	28.2%	0.51
Prosocial (teacher)	0.77	-0.69	-0.49	-0.46	22.2%	0.67
Consensual low-social	-0.76	-0.27	-0.23	-0.34	21.0%	1.33
Antisocial (parent)	-0.17	-0.56	-0.20	1.42	13.9%	1.70
Antisocial (teacher)	-0.87	0.64	1.65	-0.01	8.6%	2.01
Consensual antisocial	-1.37	-0.68	2.18	1.91	6.1%	3.93

about a child was also reflected by the low cross-informant correlations in Table 2. In sum, teachers and parents disagreed for almost half of the children, which may also be the result of their being unaware of the behavior of a child in a different context.

Table 3 also provides the sex ratio per cluster. Boys are overrepresented in the antisocial clusters, in particular in the consensual cluster: 78.7% of that cluster is male and 21.3% female. Girls are overrepresented in the prosocial clusters. In the consensual prosocial cluster, 67.4% are female and 32.6% male.

### Tests of the hypotheses

The differences between the clusters of pro- and antisocial behavior were significant for all family, sociometric, and individual characteristics. The largest differences were for parental stress ( $F(5,1767) = 187.25, p < .01$ ) and academic performance ( $F(5,1763) = 110.31, p < .01$ ). The consensual prosocial cluster scored significantly lower on academic performance than the cluster that was only prosocial according to the teacher. The two clusters did not differ on the other characteristics, but usually scored higher on positive and lower on negative characteristics than the three antisocial clusters. The differences in  $z$ -scores between the clusters were similar to effect sizes and could be used to trace meaningful differences. Cohen (1988) defined effect sizes that were smaller than .20 as small, of .50 as medium, and greater than .80 as large. Given that the proportion of boys and girls in the six clusters differed, we also compared the clusters after controlling for sex in the ANOVAs. In general, the differences between clusters did not decrease much and remained always significant; see the last column of Table 4.

In line with our first hypothesis, we found that when teachers and parents agreed on antisocial behavior of the child, the child was closer to the extremes on aspects such as effortful control, academic performance, and socioeconomic status. In contrast with our first hypothesis, we found that when teachers and parents agreed on prosocial behavior of the child, the child did not differ from children that were only prosocial according to the teacher; see Table 4.

Our second hypothesis predicted that when teachers and

parents agreed in their judgments about children being neither prosocial nor antisocial (consensual low-social), then the positive and negative correlates for these children would be weak, i.e. without extremes in either direction. This hypothesis was also supported by the data. The low-social children scored somewhat below average on all positive individual characteristics and somewhat above average on all negative individual characteristics. The differences with the consensual prosocial group were significant for effortful control, intelligence, and academic performance.

To test our third hypothesis, we looked specifically at correlates that are related to the contexts of teachers (academic performance, peer relations) and parents (parental stress). As expected, teachers, more than parents, tend to see intelligent and high-performing pupils as more prosocial than other children (Table 4). The mean of academic performance for the cluster that was perceived as prosocial by teachers ( $M = 0.59$ ) was significantly higher than the mean of academic performance for the consensual prosocial cluster ( $M = 0.36$ ); and the mean of academic performance for the cluster that was perceived as antisocial by teachers ( $M = -0.63$ ) was significantly lower than the mean of academic performance for the cluster that was perceived as antisocial by parents ( $M = -0.16$ ). Thus, the judgment of the teacher regarding pro- and antisocial characteristics had more discriminatory power than parents' judgment when it came to academic performance (and also intelligence).

We also expected that children who were liked by their peers (or who helped classmates) would be seen by teachers as prosocial, but not necessarily by parents. The mean of peer acceptance was indeed similar for the cluster that was perceived as prosocial by teachers ( $M = 0.21$ ) and the consensual prosocial cluster ( $M = 0.16$ ). The mean for the cluster that was perceived as antisocial by teachers ( $M = -0.25$ ) did not differ from the mean for the cluster that was perceived as antisocial by parents ( $M = -0.14$ ). The same was found for helping; see Table 4.

Children who were disliked by their peers (or who bullied classmates) were, as expected, seen by teachers as antisocial, but not by parents. The means of rejection and bullying for the cluster that was perceived as antisocial by teachers ( $M = 0.73$  on peer rejection and  $M = 0.85$  on bullying) differed from the

**Table 4**  
Family, sociometric, and individual characteristics per cluster: Means (or a percentage) and ANOVAs

Variable	Consensual prosocial	Prosocial (teacher)	Low-social	Antisocial (parent)	Antisocial (teacher)	Consensual antisocial	Cluster differences	With control for sex
Family characteristics								
SES	0.23 <sup>b</sup>	0.34 <sup>b</sup>	-0.19 <sup>a</sup>	-0.19 <sup>a</sup>	-0.24 <sup>a</sup>	-0.58 <sup>c</sup>	$F(5,1767) = 30.75^{**}$	$F(5,1766) = 30.11^{**}$
Family breakup	19.8% <sup>ab</sup>	16.2% <sup>a</sup>	22.6% <sup>ab</sup>	26.7% <sup>abc</sup>	30.1% <sup>bc</sup>	42.6% <sup>c</sup>	$\chi^2(5, N = 1774) = 42.93^{**}$	
Parental stress	-0.40 <sup>a</sup>	-0.25 <sup>ab</sup>	-0.23 <sup>ab</sup>	1.09 <sup>c</sup>	-0.06 <sup>b</sup>	1.40 <sup>c</sup>	$F(5,1767) = 187.25^{**}$	$F(5,1766) = 178.37^{**}$
Sociometric characteristics								
Peer acceptance	0.21 <sup>c</sup>	0.16 <sup>bc</sup>	-0.10 <sup>abc</sup>	-0.14 <sup>abc</sup>	-0.25 <sup>ab</sup>	-0.45 <sup>a</sup>	$F(5,873) = 6.87^{**}$	$F(5,872) = 5.42^{**}$
Peer rejection	-0.20 <sup>ab</sup>	-0.39 <sup>a</sup>	0.07 <sup>ab</sup>	0.03 <sup>ab</sup>	0.73 <sup>c</sup>	0.83 <sup>c</sup>	$F(5,873) = 26.30^{**}$	$F(5,872) = 20.38^{**}$
Bullying	-0.13 <sup>ab</sup>	-0.36 <sup>a</sup>	0.07 <sup>ab</sup>	0.02 <sup>ab</sup>	0.85 <sup>c</sup>	0.95 <sup>c</sup>	$F(5,873) = 27.00^{**}$	$F(5,872) = 20.23^{**}$
Victimization	-0.10 <sup>a</sup>	-0.16 <sup>a</sup>	0.15 <sup>ab</sup>	0.03 <sup>ab</sup>	0.34 <sup>b</sup>	-0.03 <sup>ab</sup>	$F(5,873) = 4.61^{**}$	$F(5,872) = 4.04^{**}$
Helping	0.20 <sup>c</sup>	0.08 <sup>bc</sup>	-0.06 <sup>abc</sup>	-0.08 <sup>abc</sup>	-0.26 <sup>ab</sup>	-0.52 <sup>a</sup>	$F(5,873) = 5.82^{**}$	$F(5,872) = 3.05^*$
Individual characteristics								
Effortful control	0.25 <sup>d</sup>	0.17 <sup>cd</sup>	-0.05 <sup>bc</sup>	-0.26 <sup>a</sup>	-0.14 <sup>bc</sup>	-0.58 <sup>a</sup>	$F(5,1615) = 18.33^{**}$	$F(5,1614) = 16.73^{**}$
Ac. performance	0.36 <sup>d</sup>	0.59 <sup>e</sup>	-0.27 <sup>c</sup>	-0.16 <sup>c</sup>	-0.63 <sup>b</sup>	-1.06 <sup>a</sup>	$F(5,1763) = 110.31^{**}$	$F(5,1762) = 97.01^{**}$
Intelligence	0.19 <sup>b</sup>	0.32 <sup>b</sup>	-0.12 <sup>a</sup>	-0.20 <sup>a</sup>	-0.16 <sup>a</sup>	-0.44 <sup>a</sup>	$F(5,1763) = 21.07^{**}$	$F(5,1762) = 24.97^{**}$

\*\* $p < 0.01$ ; Means in the same row that do not share superscripts differ at  $p < .05$  in the Scheffé test.

means for the cluster that was perceived as antisocial by parents ( $M = 0.03$  on peer rejection and  $M = 0.02$  on bullying).

Also as expected, parents tend to judge their child as antisocial especially when this is conjoined with parental stress. With regard to parental stress, the parents' judgment was largely determining for the consensual antisocial cluster, as can be seen from the fact that the means of parental stress did not differ for the consensual ( $M = 1.40$ ) and the parent antisocial clusters ( $M = 1.09$ ), but both showed significantly higher means than the cluster that was perceived as antisocial by the teacher ( $M = -0.06$ ). Both prosocial clusters scored below average on parental stress. Thus, in line with our third hypothesis, the judgment of the parent was strongly related to parental stress.

In sum, children with somewhat less extreme but nevertheless definite characteristics are often judged differently by teachers and parents. The judgment of teachers is strongly related to academic performance and to children's relations with classmates, whereas the judgment of parents is strongly related to parental stress. This is consistent with Hypothesis 3.

## Discussion

There has been a recent emphasis on the importance of investigating prosocial and antisocial behavior simultaneously because there is doubt about whether investigation of one automatically provides information on the other. We addressed the simultaneous study of pro- and antisocial behavior, explicitly including the possibility that children might show prosocial behavior according to one informant and antisocial behavior according to another.

We found that the consistency within informants was large and we did not find a cluster of children that were both prosocial and antisocial according to the same informant (cf. Hawley, 2003a; Hawley et al., 2002; Pakaslahti & Keltikangas-Järvinen, 2001; Rodkin et al., 2000). When teachers or parents say that a child displays prosocial behavior, it is unlikely that they would also say that the child displays antisocial behavior. High levels of prosocial behavior are usually accompanied by low levels of antisocial behavior, and vice versa. In addition to the consistent behavior within one setting for some children, there is also the possibility of being judged in a manner that makes behavior consistent for other children. People tend to judge others in terms of dispositions rather than situational constraints. Thus, when pro- and antisocial behaviors are attributed to pro- and antisocial dispositions, respectively, it is likely that one person judges the child to have one or the other disposition, but not both, resulting in a tendency for consistent judgment of behavior as pro- or antisocial (see also literature on the fundamental attribution error: Miller, Ashton, & Mishal, 1990; Ross & Nisbett, 1991).

This mechanism creates consensual judgment if the characteristics are so extreme that the context and criteria of judgment do not matter. The configurations that were perceived as prosocial or antisocial by both informants were isomorphic with regard to children being well- and poorly adjusted, respectively. This is in line with our first hypothesis. The prosocial clusters had the highest level of socioeconomic status, effortful control, intelligence, academic performance, and peer acceptance, and the lowest level of peer rejection, bullying, victimization, and parental stress. The consensual

antisocial cluster had the reverse levels of these variables (see also Hawley, 2003a; Rodkin et al., 2000). These antisocial youths may be seriously at risk of becoming life-course persistent in their antisocial behavior (Moffitt, 1993).

Consensus between teachers and parents can also come about because neither makes definite attributions in either the prosocial or the antisocial direction. Our second hypothesis predicted that this "consensual low-social" profile would go together with low-profile correlates. This also turned out to be the case. Such children were more disadvantaged than prosocial children, but less so than antisocial children, although differences were not significant for some characteristics, such as victimization. Parents reported low levels of stress caused by these children. This group can be compared to neglected children (Kupersmidt & Coie, 1990; Newcomb et al., 1993), low-status children (Lease, Musgrove, & Axelrod, 2002), or non-controllers (Hawley, 2003a). Rodkin et al. (2000) found that a similar percentage of children were low-social (about one fifth). The low-social children in their study were, according to teachers, low in aggressiveness and high in shyness, and according to peers they were not cool, athletic, popular, or aggressive.

When characteristics are clear enough to allow a definite judgment but not extreme, teachers and parents may come to very different judgments. They disagree for almost half of the children. One of the most striking differences is for the cluster that was antisocial according to the teacher, but was prosocial according to the parent. These children scored far above average on antisocial behavior ( $M = 1.65$ ) and far below average on prosocial behavior ( $M = -0.87$ ) according to the teacher, whereas parents rated these children far above average on prosocial behavior ( $M = 0.64$ ). Thus, children were judged to be prosocial by one informant and antisocial by the other.

Other clusters without consensus between informants were children who were antisocial ( $M = 1.42$ ) according to the parents, but who scored below average on both prosocial ( $M = -0.17$ ) and antisocial behavior ( $M = -0.20$ ) according to the teachers. In a similar way, some children who were prosocial ( $M = 0.77$ ) according to the teachers scored below average on both prosocial ( $M = -0.69$ ) and antisocial behavior ( $M = -0.46$ ) according to the parents.

That teachers and parents disagree on the behavior of many children may indicate that these children behave differently in different settings and that informants are unaware of these differences (Kraemer et al., 2003). Different contexts may also lead to different major goals and thus to different criteria for judgment. The data tell us that parents are more likely to see their children as antisocial when the children create parental stress. The same children are seen differently by teachers, for whom peer relations, intelligence, and academic performance are related to judgments as prosocial or antisocial. Of course, we do not know the causal order of these links, but no matter what they are, the findings suggest that context-dependent criteria effects are operative, and this is in line with our third hypothesis.

Combining the research traditions on pro- and antisocial behavior and combining the views from different informants may yield knowledge on the basis of which more effective prevention and intervention measures for social development can be developed. For example, the consensual antisocial cluster was worse off than the clusters that were only antisocial according to one informant. Another example is the consensual low-social group, which we would not have detected had



we used a variable-centered approach and had we looked at only prosocial or antisocial behavior. That group contains more than one fifth of all children. Hawley (2003a) found that low-social children were ineffective communicators and low in sensitivity to social cues, and tended to be anxious, withdrawn, and submissive. Thus, this group of low-social children is one that warrants attention.

If we had had information from only one informant, we would have missed the three clusters for which teachers and parents disagree. These clusters contain almost half of the children. Thus, opinions about large groups of children are incomplete when they are based on a single informant. The results suggest that the use of a single informant presents a biased and limited description of the behavior of children.

Finally, it may be valuable for teachers and parents to know each other's opinions about a child and to hear that the behavior of a child can be viewed differently. Educating children can be hard and children might induce stress, but there are multiple ways to respond to a child, and teachers and parents might help each other in finding the best response (Pinderhughes, Bates, Dodge, Pettit, & Zelli, 2000; Veenstra, Lindenberg, Oldehinkel, De Winter, & Ormel, 2006), in order to prevent the emergence of coercive cycles (Granic & Patterson, 2006).

### Strengths and limitations

Our study has a number of notable strengths: a topic was addressed which so far has received little attention. The study also has a number of methodological strengths. It included a large sample size, measurement of a considerable number of correlates, the use of multiple informants, and the use of a variable-centered (correlations) and a person-centered (clusters) approach.

Clearly, there are also limitations. First, the study was based on data at one point in time from a single age group. The longitudinal nature of our survey, TRAILS, will allow us to investigate prospective relations in the future. However, even before longitudinal data are available, it is worthwhile investigating pro- and antisocial behavior in order to get a better grip on the possible puzzles to be investigated using a longitudinal data set. One of these puzzles will be whether the predictive power of teachers is stronger than that of parents (Donker, 2006; Sourander et al., 2006; Verhulst, Koot, & Van der Ende, 1994). Another puzzle may be possible sex differences in prosocial and antisocial behavior. We examined the correlations of family, sociometric, and individual background characteristics with pro- and antisocial behavior for girls and boys separately. It turned out that the correlations were generally similar across both sexes. However, it is possible that the long-term outcomes of preadolescent prosocial or antisocial behavior are different for girls and boys.

A second limitation of our study was that, even though there was much overlap in our measures of prosocial behavior, they were not identical for both informants. Future research on prosocial behavior might benefit from the development and deployment of the same instruments for teachers, parents, and self-report (similar to the Teacher's Report Form, Child Behavior Checklist, and Youth Self Report for, among other things, antisocial behavior). In addition, studies focusing on the co-occurrence of prosocial and antisocial behavior might also benefit from consensus among researchers on how to measure these behaviors. So far, the measures differ from study

to study (and the current one is no exception). It is unclear which measures are the best. For example, the work of Hawley is outstanding. However, she does not focus on pro- and antisocial behavior directly but on control strategies, i.e., how children aim to influence others.

In conclusion, we found that parents and teachers agreed in their judgments on some children. Children that were perceived as prosocial by both informants had the most favorable background, whereas children that were seen as antisocial by both had the least favorable background. Children that were seen as neither prosocial nor antisocial scored below average on positive background characteristics and above average on negative characteristics. However, their background was often more favorable than that of antisocial children. For children that were prosocial according to one informant and antisocial according to the other, the correlates were more rater-specific. We found that teachers and parents used different context-dependent criteria for judging children to be prosocial or antisocial. Academic performance and peer relations were related to the teacher's judgment of pro- and antisocial behavior. By contrast, being problematic at home (and thus causing stress for the parents) was related to the parents' judgment.

### References

- Abidin, R.R. (1983). *Parenting Stress Index: Manual, administration booklet, and research update*. Charlottesville, VA: Pediatric Psychology Press.
- Achenbach, T.M. (1991a). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington: University of Vermont.
- Achenbach, T.M. (1991b). *Manual of the Teacher's Report Form and 1991 Profile*. Burlington: University of Vermont.
- Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, *101*, 213-232.
- Boxer, P., Tisak, M.S., & Goldstein, S.E. (2004). Is it bad to be good? An exploration of aggressive and prosocial behavior subtypes in adolescence. *Journal of Youth and Adolescence*, *33*, 91-100.
- Caprara, G.V., Barbaranelli, C., & Pastorelli, C. (2001). Prosocial behavior and aggression in childhood and pre-adolescence. In A.C. Bohart & D.J. Stipek (Eds.), *Constructive and destructive behavior: Implications for family, school, and society* (pp. 187-203). Washington, DC: American Psychological Association.
- Caprara, G.V., & Pastorelli, C. (1993). Early emotional instability, prosocial behaviour, and aggression: Some methodological aspects. *European Journal of Personality*, *7*, 19-36.
- Carlo, G., Roesch, S.C., & Melby, J. (1998). The multiplicative relations of parenting and temperament to prosocial and antisocial behaviors in adolescence. *Journal of Early Adolescence*, *18*, 266-290.
- Cialdini, R.B., & Goldstein, N.J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, *55*, 591-621.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Côté, S., Tremblay, R.E., Nagin, D., Zoccolillo, M., & Vitaro, F. (2002). The development of impulsivity, fearfulness, and helpfulness during childhood: Patterns of consistency and change in the trajectories of boys and girls. *Journal of Child Psychology and Psychiatry*, *43*, 609-618.
- De Winter, A.F., Oldehinkel, A.J., Veenstra, R., Brunnekreef, J.A., Verhulst, F.C., & Ormel, J. (2005). Evaluation of non-response bias in mental health determinants and outcomes in a large sample of pre-adolescents. *European Journal of Epidemiology*, *20*, 173-181.
- Dodge, K.A., Coie, J.D., & Lynam, D. (2006). Aggression and antisocial behavior. In N. Eisenberg (Ed.), *Handbook of child psychology, Volume 3: Social, emotional, and personality development* (pp. 719-788). New York: Wiley.
- Donker, A.G. (2006). Combined parent and teacher reports. Unpublished manuscript. University of Leiden.
- Dunning, D. (2001). On the motives underlying social cognition. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology. Intraindividual processes* (pp. 348-374). Oxford: Blackwell.
- Eisenberg, N., Fabes, R.A., & Spinrad, T.L. (2006). Prosocial development. In N. Eisenberg (Ed.), *Handbook of child psychology, Volume 3: Social, emotional, and personality development* (pp. 646-718). New York: Wiley.

- Ellis, L.K. (2002). *Individual differences and adolescent psychosocial development*. PhD dissertation, Department of Psychology, University of Oregon, Eugene.
- Everitt, B.S., Landau, S., & Leese, M. (2001). *Cluster analysis*. London: Arnold.
- Fabes, R.A., Carlo, G., Kupanoff, K., & Laible, D. (1999). Early adolescence and prosocial/moral behavior. I: The role of individual processes. *Journal of Early Adolescence*, 19, 5–16.
- Ferguson, M.J., & Bargh, J.A. (2004). Liking is for doing: The effects of goal pursuit on automatic evaluation. *Journal of Personality and Social Psychology*, 87, 557–572.
- Ganzeboom, H.B.G., & Treiman, D.J. (1996). Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Social Science Research*, 25, 201–239.
- Ganzeboom, H.B.G., & Treiman, D.J. (2003). Three internationally standardized measures for comparative research on occupational status. In J.H.P. Hoffmeyer-Zlotnick & C. Wolf (Eds.), *Advances in cross-national comparison. A European working book for demographic and socio-economic variables* (pp. 159–193). New York: Kluwer.
- Granic, I., & Patterson, G.R. (2006). Toward a comprehensive model of anti-social development: A dynamic systems approach. *Psychological Review*, 113, 101–131.
- Gresham, F.M., & Elliot, S.N. (1990). *Social skills rating system. Manual*. Circle Pines, MN: American Guidance Service.
- Hawley, P.H. (2003a). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Quarterly*, 49, 279–309.
- Hawley, P.H. (2003b). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of Experimental Child Psychology*, 85, 213–235.
- Hawley, P.H., Little, T.D., & Pasupathi, M. (2002). Winning friends and influencing peers: Strategies of peer influence in late childhood. *International Journal of Behavioral Development*, 26, 466–474.
- Jones, P.R., & Harris, P.W. (1999). Developing an empirically based typology of delinquent youths. *Journal of Quantitative Criminology*, 15, 251–276.
- Kokko, K., Lacourse, E., & Vitaro, F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence*, 16, 403–428.
- Kraemer, H.C., Measelle, J.R., Ablow, J.C., Essex, M.J., Boyce, W.T., & Kupfer, D.J. (2003). A new approach to integrating data from multiple informants in psychiatric assessment and research: Mixing and matching contexts and perspectives. *American Journal of Psychiatry*, 160, 1566–1577.
- Krueger, R.F., Hicks, B.M., & McGue, M. (2001). Altruism and antisocial behavior: Independent tendencies, unique personality correlates, distinct etiologies. *Psychological Science*, 12, 397–402.
- Kupersmidt, J.B., & Coie, J.D. (1990). Preadolescent peer status, aggression, and school adjustment as predictors of externalizing problems in adolescence. *Child Development*, 61, 1350–1362.
- Lease, A.M., Musgrove, K.T., & Axelrod, J.L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development*, 11, 508–533.
- Lindenberg, S. (1998). Solidarity: Its microfoundations and macro-dependence. A framing approach. In P. Doreian & T.J. Fararo (Eds.), *The problem of solidarity: Theories and models* (pp. 61–112). Amsterdam: Gordon and Breach.
- Lindenberg, S. (2006). Prosocial behavior, solidarity, and framing processes. In D. Fetchenhauer, A. Flache, A.P. Buunk, & S. Lindenberg (Eds.), *Solidarity and prosocial behavior. An integration of sociological and psychological perspectives* (pp. 23–43). Berlin: Springer.
- Loeber, R. (1982). The stability of antisocial and delinquent child behavior: A review. *Child Development*, 53, 1431–1446.
- Loyd, B.H., & Abidin, R.R. (1985). Revision of the Parenting Stress Index. *Journal of Pediatric Psychology*, 10, 169–177.
- McGinley, M., & Carlo, G. (2007). Two sides of the same coin? The relations between prosocial and physically aggressive behaviors. *Journal of Youth and Adolescence*, 36, 337–350.
- Miller, A., Ashton, W., & Mishal, M. (1990). Beliefs concerning the features of constrained behavior: A basis for the fundamental attribution error. *Journal of Personality and Social Psychology*, 59, 635–650.
- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674–701.
- Moffitt, T.E., Caspi, A., Harrington, H., & Milne, B.J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26. *Development and Psychopathology*, 14, 179–206.
- Newcomb, A.F., Bukowski, W.M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin*, 113, 99–128.
- Oldehinkel, A.J., Hartman, C.A., De Winter, A.F., Veenstra, R., & Ormel, J. (2004). Temperament profiles associated with internalizing and externalizing problems in preadolescence. *Development and Psychopathology*, 16, 421–440.
- Pakaslahti, L., & Keltikangas-Järvinen, L. (2001). Peer-attributed prosocial behavior among aggressive/preferred, aggressive/non-preferred, non-aggressive/preferred, non-aggressive/non-preferred adolescents. *Personality and Individual Differences*, 30, 903–916.
- Persson, G.E.B. (2005). Developmental perspectives on prosocial and aggressive motives in preschoolers' peer interactions. *International Journal of Behavioral Development*, 29, 80–91.
- Persson, G.E.B. (2006). Young children's prosocial and aggressive behaviors and their experiences of being targeted for similar behaviors by peers. *Social Development*, 14, 206–228.
- Pinderhughes, E.E., Bates, J.E., Dodge, K.A., Pettit, G.S., & Zelli, A. (2000). Discipline responses: Influences of parents' socioeconomic status, ethnicity, beliefs about parenting, stress, and cognitive-emotional processes. *Journal of Family Psychology*, 14, 380–400.
- Putnam, S.P., Ellis, L.K., & Rothbart, M.K. (2001). The structure of temperament from infancy through adolescence. In A. Elias & A. Angleitner (Eds.), *Advances/proceedings in research on temperament* (pp. 165–182). Germany: Pabst Scientist.
- Rodkin, P.C., Farmer, T.W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology*, 36, 14–24.
- Ross, L., & Nisbett, R.E. (1991). *The person and the situation: Perspectives in social psychology*. New York: McGraw-Hill.
- Rutter, M., Giller, H., & Hagell, A. (1998). *Antisocial behavior by young people*. Cambridge: Cambridge University Press.
- Shah, J., & Kruglanski, A.W. (2003). When opportunity knocks: Bottom-up priming of goals by means and its effect on self-regulation. *Journal of Personality and Social Psychology*, 84, 1109–1122.
- Sharma, S. (1996). *Applied multivariate techniques*. New York: Wiley.
- Silverstein, A.B. (1972). Validity of WISC-R short forms. *Journal of Clinical Psychology*, 31, 696–697.
- Sourander, A., Elonheimo, H., Niemelä, S., Nuutila, A.-M., Helenius, H., Sillanmäki, L. et al. (2006). Childhood predictors of male criminality: A prospective population-based follow-up study from age 8 to late adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45, 578–586.
- Tremblay, R.E., Vitaro, F., Gagnon, C., & Piché, C. (1992). A prosocial scale for the Preschool Behaviour Questionnaire: Concurrent and predictive correlates. *International Journal of Behavioral Development*, 15, 227–245.
- Veenstra, R. (2006). The development of Dr. Jekyll and Mr. Hyde: Prosocial and antisocial behavior in adolescence. In D. Fetchenhauer, A. Flache, A.P. Buunk, & S. Lindenberg (Eds.), *Solidarity and prosocial behavior. An integration of sociological and psychological perspectives* (pp. 93–108). Berlin: Springer.
- Veenstra, R., Lindenberg, S., Oldehinkel, A.J., De Winter, A.F., & Ormel, J. (2006). Temperament, environment, and antisocial behavior in a population sample of preadolescent boys and girls. *International Journal of Behavioral Development*, 30, 422–432.
- Veenstra, R., Lindenberg, S., Oldehinkel, A.J., De Winter, A.F., Verhulst, F.C., & Ormel, J. (2005). Bullying and victimization in elementary schools: A comparison of bullies, victims, bully/victims, and uninvolved preadolescents. *Developmental Psychology*, 41, 672–682.
- Veenstra, R., Lindenberg, S., Zijlstra, B.J.H., De Winter, A.F., Verhulst, F.C., & Ormel, J. (2007). The dyadic nature of bullying and victimization: Testing a dual perspective theory. *Child Development*, 78, 1843–1854.
- Verhulst, F.C., & Achenbach, T.M. (1995). Empirically based assessment and taxonomy of psychopathology: Cross-cultural applications. *European Child and Adolescent Psychiatry*, 4, 61–76.
- Verhulst, F.C., Koot, H.M., & Van der Ende, J. (1994). Differential predictive value of parents' and teachers' reports of children's problem behaviors: A longitudinal study. *Journal of Abnormal Child Psychology*, 22, 531–546.
- Vitaro, F., Gagnon, C., & Tremblay, R.E. (1991). Teachers and mothers assessment of children's behaviors from kindergarten to grade-2: Stability and change within and across informants. *Journal of Psychopathology and Behavioral Assessment*, 13, 325–343.