

International Journal of Behavioral Development

<http://jbd.sagepub.com>

The delicate balance between parental protection, unsupervised wandering, and adolescents' autonomy and its relation with antisocial behavior: The TRAILS study

Miranda Sentse, Jan Kornelis Dijkstra, Siegwart Lindenberg, Johan Ormel and René Veenstra
International Journal of Behavioral Development 2010; 34; 159 originally published online Jan 20, 2010;
DOI: 10.1177/0165025409350949

The online version of this article can be found at:
<http://jbd.sagepub.com/cgi/content/abstract/34/2/159>

Published by:



<http://www.sagepublications.com>

On behalf of:



[International Society for the Study of Behavioral Development](http://www.sagepub.com/journalsPermissions.nav)

Additional services and information for *International Journal of Behavioral Development* can be found at:

Email Alerts: <http://jbd.sagepub.com/cgi/alerts>

Subscriptions: <http://jbd.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.co.uk/journalsPermissions.nav>

Citations <http://jbd.sagepub.com/cgi/content/refs/34/2/159>

The delicate balance between parental protection, unsupervised wandering, and adolescents' autonomy and its relation with antisocial behavior: The TRAILS study

Miranda Sentse,¹ Jan Kornelis Dijkstra,² Siegwart Lindenberg,²
Johan Ormel,³ and René Veenstra²

Abstract

In a large sample of early adolescents (T2: $N = 1023$; M age = 13.51; 55.5% girls), the impact of parental protection and unsupervised wandering on adolescents' antisocial behavior 2.5 years later was tested in this TRAILS study; gender and parental knowledge were controlled for. In addition, the level of biological maturation and having antisocial friends were included as possible moderators for the associations of parental protection and unsupervised wandering with adolescent antisocial behavior. The negative effect of protection on engagement in antisocial behavior held only for boys and for early-maturing adolescents, whereas the effect of unsupervised wandering was found only for boys and for adolescents who had antisocial friends. The results point to a delicate balance between parental protection and unsupervised wandering with respect to adolescents' autonomy.

Keywords

adolescence, antisocial behavior, antisocial friends, biological maturation, parental protection, unsupervised wandering

At the onset of adolescence, youngsters become more vulnerable to engagement in antisocial behavior (Agnew, 2003; Moffitt, 1993; Warr, 1993). Antisocial behavior is considered more normative and is valued less negatively in adolescence than in childhood (Allen, Weissberg, & Hawkins, 1989). An extensive line of research addressed explanations for this susceptibility of adolescents to engage in antisocial behavior. From a developmental perspective, antisocial behavior of adolescents might best be considered in the light of friction between biological maturation and access to adult privileges, such as autonomy, status, and material resources. That is, despite their biological maturation, adolescents are forced to delay attractive adult privileges, because parents, teachers, and other authority figures still set rules and exert control over them (Agnew, 2003). Hence, adolescents who feel that they have no access to adult roles are trapped in a maturity gap (Moffitt, 1993). Behavior that challenges adult rules and parental authority can be considered to be a temporary strategy that provides adolescents with a sense of autonomy. In this way, the maturity gap has been seen as a major cause of adolescents' engagement in antisocial behavior (Agnew, 2003; Moffitt, 1993).

Adolescents' strategy to deal with the maturity gap potentially confronts parents with an important dilemma. On the one hand, parents want to protect their children from engagement in maladaptive behavior such as antisocial behavior, which calls for parental supervision, knowledge, and control. These factors have been identified as important protective factors for involvement in antisocial behavior (Laird, Pettit, Dodge, & Bates, 2003; Loeber & Farrington, 2000). However, there are indications that parents who try to control their children too much (overprotection) actually enhance their children's risk of acting antisocially (Jensen, Arnett, Feldman, & Cauffman, 2004; Sentse, Veenstra, Lindenberg,

Verhulst, & Ormel, 2009; Veenstra, Lindenberg, Oldehinkel, De Winter, & Ormel, 2006). On the other hand, some parents would like to provide their children with opportunities to explore adult privileges by granting them autonomy and independence. However, parents who provide too little supervision and control might also increase engagement in antisocial behavior, because the opportunity for negative peer influences is expanded (Fergusson & Horwood, 1999; Warr, 2005).

This raises the following questions: To what extent should parents set rules, protect, and supervise their children? Is antisocial behavior in adolescence at least in part the result of a misfit between parents who exert control and protection, and adolescents who strive for independence and autonomy? The present study set out to answer these questions by examining the effects of indicators for various parental control strategies (i.e., protection, unsupervised wandering, parental knowledge) on antisocial behavior 2.5 years later. Moreover, we argue that the level of biological maturation relative to gender and age, and antisocial behavior of befriended peers are likely to influence the extent to which parenting strategies affect the antisocial behavior of adolescents (see Figure 1 for an overview).

¹University of Groningen and University Medical Center Groningen, The Netherlands

²University of Groningen, The Netherlands

³University Medical Center Groningen, The Netherlands

Corresponding author:

Miranda Sentse, University of Groningen, Sociology/ICS, Grote Rozenstraat 31, Groningen, 9712 TG, The Netherlands
Email: m.sentse@rug.nl

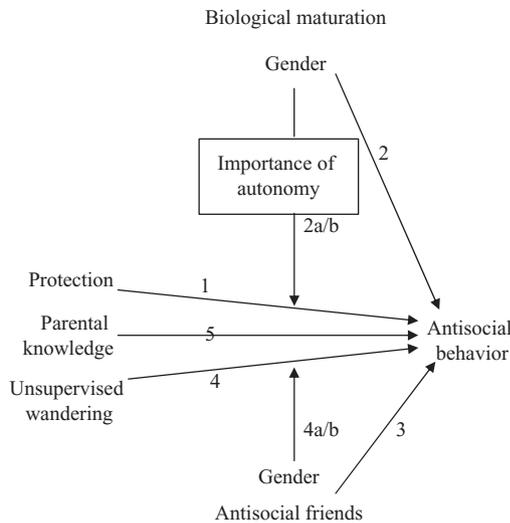


Figure 1. Overview of hypotheses to be tested.

Note. The numbers correspond with hypotheses in the introduction.

Protection

Although Moffitt (1993) explains antisocial behavior in adolescence with a perceived maturity gap, the underlying mechanism is not clearly defined. Recent research findings on goal pursuit and social influence (e.g., Dijkstra, Lindenberg, & Veenstra, 2007; Lindenberg, 2006) suggest that social influences of the achievement of important goals (especially the striving for autonomy) also play an important role for the way the maturity gap causes antisocial behavior. Ryan and Deci's (2000) self-determination theory states that humans have a natural tendency to strive for autonomy. This need is hindered when parents protect their children too much. This might, in turn, lead to antisocial behavior because adolescents then try to establish their autonomy in opposition to parental control. For example, Jensen and colleagues (2004) found that adolescents feel it is justified to lie to their parents in order to assert the right to autonomy. Moreover, with increasing parental control more lying behavior was reported among adolescents (Jensen et al., 2004). This finding is consistent with the stage-environment fit theory of Eccles et al. (1993), which states that if the environment adapts to adolescents' changing needs (here: autonomy), they are more likely to experience positive outcomes than those adolescents whose environment does not respond concordantly. Accordingly, we expect that protection is positively associated with antisocial behavior (Hypothesis 1).

Having an environment that is adaptive to changing needs is important for all people but especially for early-maturing adolescents, as for them autonomy will be an even more focal goal compared to on-time or late maturers. This can be explained by a domain-model for social-cognitive development (Nucci, 2001; Turiel, 1983), in which a distinction is made between moral (pertaining to others' rights or welfare), conventional (contextually relative norms, etiquette), and personal (pertaining to the individual only, privacy) issues. It has been shown that with increasing age the domain which adolescents consider "personal," and thus under their jurisdiction, increases at the expense of issues that parents see as matters of convention, morality, and prudence, and under their jurisdiction (see Smetana & Asquith, 1994). It is likely that early physical maturation widens the scope of what is seen as belonging to the personal domain earlier.

If parents fail to react appropriately to their early maturing children's increasing need for autonomy, the maturity gap will become larger and conflicts about jurisdiction ("who may decide what") are more likely to be interpreted by those youths as involving personal behavioral autonomy. In addition, such conflicts are more likely to lead to reduced attachment of the youths to their parents, opening the door more widely to peer influence and oppositional behavior in the contested realm of autonomy (Agnew, 2003). In line with this, we expect that early maturation will be positively associated with early adolescents' engagement in antisocial behavior (Hypothesis 2).

In addition, early maturation is likely to increase the effect of parental protection on antisocial behavior. For example, Ge, Brody, Conger, Simons, and Murry (2002) found that among African American children, harsh and inconsistent parenting was related to externalizing problems, especially for those who mature early. Hence, we hypothesize that (2a) the association of parental protection with engagement in antisocial behavior is strengthened by early maturation.

Finally, the reasoning about the personal domain used for early maturers can also help us establish expectations about gender differences. Boys are in many contexts outside the home less vulnerable than girls and thus are granted larger personal domains by their parents than girls at this age. As a consequence, it can be expected that reducing this personal domain by parental protection makes boys more than girls feel easily restricted in their personal autonomy. Therefore, we hypothesize that (2b) the relation between parental protection and antisocial behavior particularly holds for boys.

Unsupervised wandering

The other horn of the parental dilemma is minimal control and involvement of parents, probably again related to antisocial behavior by the dynamics of realizing an important goal: a sense of belonging (Baumeister & Leary, 1995). Unsupervised time can involve structured activities, such as team sport. However, unsupervised wandering on the streets does not provide structure to the activities and thus makes the absence of supervision particularly conducive to engaging in antisocial behavior (Agnew, 2003; Warr, 2005). Unsupervised wandering has been found to be associated with problem behavior (Galambos & Maggs, 1991; Stoolmiller, 1994). This presumed positive relation between spending time on the street without parental supervision and adolescents' engagement in antisocial behavior is likely to be exacerbated by association with certain peers.

For adolescents, a sense of belonging creates a high priority for spending time and hanging around with peers. According to Giordano (1995), peer relations are attractive to adolescents for realizing a sense of belonging because they are more egalitarian, less controlling, and less judgmental than relations with adults. Reflecting this, peers become increasingly important as "socializing agents" (Buehler, 2006; Fuligni & Eccles, 1993). Indeed, adolescents' behavior is highly influenced by their friends' behavior. This influence includes maladaptive outcomes, such as antisocial behavior (Patterson, Forgatch, Yoerger, & Stoolmiller, 1998; Stoolmiller, 1994). It has been consistently shown that the number of delinquent friends is one of the strongest correlates of delinquent behavior in adolescence (Buehler, 2006; Laird, Pettit, Dodge, & Bates, 2005). Yet it has to be acknowledged that these

correlates can also emerge from reversed causality, pointing to selection rather than influence effects. Most likely, both processes are at work simultaneously. Accordingly, we hypothesize that having antisocial friends will be positively associated with early adolescents' engagement in antisocial behavior (Hypothesis 3).

Adolescents who spend much of their time unsupervised on the street have also more opportunities to associate with antisocial peers (Agnew, 2003; Fergusson & Horwood, 1999; Warr, 2005), which heightens the risk of engagement in antisocial behavior themselves (Kim, Hetherington, & Reiss, 1999). Therefore, a lack of supervision in the sense described has an impact on adolescents' engagement in antisocial behavior, particularly for those who have antisocial friends. Therefore, we hypothesize that (4a) the relation between unsupervised wandering and antisocial behavior is strengthened by having antisocial friends.

Additionally, we hypothesize that (4b) unsupervised wandering is more strongly related to antisocial behavior for boys than girls. As mentioned above, it has been found that boys have lower self-control and they are assumed to be more susceptible to (negative) peer influences than girls (Mason & Windle, 2002), thus benefiting more from supervision to refrain from antisocial behavior. Therefore, in an unsupervised setting on the street with peers, boys will be more likely to act antisocially compared to girls.

Parental knowledge

Next to the assumed relations between parental protection, unsupervised wandering, and antisocial behavior, we considered parental knowledge about the child as a variable indicative of parental behavior that is neither overly intrusive nor lacking any parental involvement. Parental knowledge is sometimes referred to as parental monitoring, although these concepts are not interchangeable. Monitoring is not the same as, but rather *implies* parental knowledge of, the child's activities and friends. Parental monitoring is conceptualized as active surveillance or tracking of children's behavior, whereas parental knowledge is the result of activities of both parents and children, referring to monitoring and child disclosure, respectively (Smetana, Crean, & Daddis, 2002; Stattin & Kerr, 2000).

Though earlier research has treated parental knowledge or monitoring mostly as a parental characteristic, more recent research findings show that its protective effect on maladaptive behavior comes mainly from child disclosure (Stattin & Kerr, 2000). That is, the knowledge parents have about their children's whereabouts and their friends is likely to come from the children themselves. Nevertheless, child disclosure is higher when parents actively ask for information and show an interest in the lives of their children (Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). Moreover, parents can act upon that knowledge about their children by revising rules or their own parenting behavior (e.g., increase or decrease control and supervision).

Because parental knowledge about the child is the result of activities by both parents and children, it might best be seen as a proxy for the quality of the parent-child relationship. In high quality parent-child relations, the children are supposedly able to talk with their parents on numerous topics, as the parents are likely to be able to respond in a sensitive way. In low quality parent-child relations, in contrast, one might expect that children are less willing to disclose information to their parents, presumably because parents are not able to respond concordantly. This also suggests that

children who hang around with antisocial peers and who act antisocially themselves might share less information with their parents than children who have "nothing to hide" (cf. Ryan & Deci, 2000; Laird et al., 2003), though this might be dependent on parental behavior and the relationship with parents. Our final hypothesis is therefore that (5) parental knowledge is negatively associated with antisocial behavior of early adolescents.

Method

Sample

This 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. The present study involved the first (T1) and the second (T2) assessment waves of TRAILS, which ran from March 2001 to July 2002, and September 2003 to December 2004, respectively (De Winter et al., 2005). The TRAILS target sample consisted of preadolescents living in five municipalities in the northern part of the Netherlands, including both urban and rural areas. Of the children approached for enrolment in the study (selected by the municipalities and attending a school that was willing to participate; $N = 3,145$ children from 122 schools, response of schools 90.4%), 6.7% were excluded because of incapability or language problems (mental retardation, a serious physical illness or handicap, no Dutch-speaking parent or parent surrogate available). Of the remaining children, 76% were enrolled in the study, resulting in a maximum sample size of 2,230 (the actual sample was smaller, see below). Both the child and the parent agreed to participate. The mean age of the children at T1 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% had parents with a low educational level. Of the 2,230 T1 participants, 96.4% ($n = 2149$) participated in T2. A detailed description of the study design, sampling procedures, data collection, and measures of the TRAILS study can be found in De Winter et al. (2005) and Huisman et al. (2008).

A peer nominations subsample was used in the present study. The subsample consisted of 1,065 of the 2,230 T1 TRAILS respondents (see also Dijkstra et al., 2007). Peer nominations, which were essential for the present study, were only assessed in classrooms with at least 10 TRAILS respondents. For this reason, children in school classes with fewer than 10 TRAILS respondents were omitted. These children had few TRAILS classmates because our sample is a birth cohort, which made the subsample more selective. Children in special education (5.6% of the sample), children in small schools (6.4%), and children who repeated a grade (16.9%) or skipped a grade (2.2%), were not included in the subsample. The subsample consisted of 1,065 children (T1: mean age: 11.06, $SD = .51$; 55.2% girls; 8.7% had at least one parent born in a non-western country; 32% of children had a father and 33.8% a mother with a low educational level, at maximum a certificate from a lower track of secondary education). Of the 1,065 first wave (T1) peer nomination participants, 96.2% ($n = 1023$) participated in the second wave (T2) of TRAILS. At T2, the mean age of the children in this subsample was 13.51 years ($SD = 0.53$), and 55.5% were girls.

The assessment of the peer nominations lasted about 15 minutes, and took place during regular lessons. After brief instructions in which a TRAILS staff member emphasized that information would

be kept confidential and that children were not allowed to talk to each other during the assessment, the children received the questionnaire, with the names of all classmates listed. The teacher and the TRAILS staff member remained in the classroom during the administration of the peer nominations.

Measures

Antisocial behavior. Antisocial behavior pertains to behavior that results in physical or mental harm, property loss, or damage to others and it is behavior that decreases the well-being of other persons to a large degree (Loeber & Schmalzing, 1985). To measure antisocial behavior, we used T2 scores on the *Anti-Social Behavior Questionnaire* (ASBQ), which contains a large number of items on severe antisocial behaviors. The ASBQ is comparable to the Self-Report Delinquency Scale (Moffitt & Silva, 1988), and consists of 26 behaviors (e.g., “How often have you destroyed something on purpose?”, “How often have you used a weapon?”). Questions were rated as (0) no, never, (1) once, (2) two or three times, (3) four to six times, (4) seven times or more. To measure antisocial behavior, the mean of these 26 items was taken. Whereas the theoretically possible range of the scores was from 0–4, the observed range in our sample was from 0–2.62. The internal consistency of the ASBQ scale was .88.

Antisocial friends. At T1, during the peer-nomination procedure, adolescents answered the question, “Which classmates are your friends?” Respondents could nominate an unlimited number of same-gender and cross-gender classmates. Antisocial characteristics of these friends were based on the number of nominations respondents received from all classmates on the following questions: Substance Use (“Who drinks alcohol and/or takes (soft) drugs on a regular basis?”), Rule Breaking (“Who breaks the rules often (e.g., steals something, demolishes a bus shelter?)”), and Physical Aggression (“Who quarrels and/or initiates a fight often?”). Nominations received per item were divided by the maximum number of possible nominations (i.e., the number of classmates). This way, the scores were transformed into proportions, yielding scores from minimum 0 to maximum 1. We then summed these scores up over the three questions indicating antisocial behavior, creating a variable ranging from 0 (not antisocial) to 3 (very antisocial). Per respondent, the mean score on friends’ antisocial behavior was calculated over all nominated friends, as respondents could nominate more than one friend.

Parental protection. To assess pre-adolescents’ perceptions of current parental rearing at T1, we used the EMBU-C, My Memories of Upbringing for Children (Markus, Lindhout, Boer, Hoogendijk, & Arrindell, 2003). The original EMBU-C contained 81 items. Markus et al. (2003) developed a shorter version, which we used. The test–retest stability of a shortened version of the EMBU-C over a two-month period has been found to be satisfactory ($r = .78$ or higher; Muris, Meesters, & Van Brakel, 2003). Arrindell, Gerlsma, Vandereycken, Hageman, and Daeseleire (1998) have reported on the validity of the EMBU-C, showing that the Protection scale correlated significantly with the PBI (Parental Bonding Instrument) protection scale, and factor analyses on both instruments showed that the Protection items loaded positively and significantly on a ‘protection/control’ dimension.

For the current study we only used the subscale Protection (labeled as Overprotection in the EMBU-C), which is characterized by fearfulness and anxiety for the child’s safety, and intrusiveness. Children could rate the EMBU-C as (1) “no, never”, (2) “yes, sometimes,” (3) “yes, often,” and (4) “yes, almost always.” Each item was asked for both the father and the mother. The scale for Protection contained 12 items, with an internal consistency of .70 for fathers and .71 for mothers. An example of an item is, “Does your mother/father forbid you to do things that your classmates are allowed to do because she/he is afraid of something happening to you?” The answers for both parents were highly correlated ($r = .81$), so we combined them into one score.

Unsupervised wandering. Lack of supervision was measured by the amount of time adolescents spend unsupervised on the street, implying an absence of control and rules set by adults. At T1 children were asked how they spend their free time. Children rated the amount of time they spend per item, and these answers were transformed into relative time-spending scores (proportions), ranging from 0 (never) to 1 (always). We used the scores on the item “on the street with friends.”

Parental knowledge. We measured parental knowledge by asking the adolescents at T2 what their parents knew about them on several domains. The questions involved knowledge about friends, spending money, time-spending, and substance use (cf. Patterson & Stouthamer-Loeber, 1984). A sample item is, “How much does your mother/ father know about who your friends are?” For both the mother and father, eight items were rated as knowing (1) nothing, (2) little, and (3) much. Internal consistency was .72 for mothers and .78 for fathers. The scores for mothers and fathers were highly correlated ($r = .80$), so we combined them into one score.

Biological maturation. Stage of pubertal development was assessed in the parent interviews at T1 and T2 using schematic drawings of secondary gender characteristics associated with the five standard Tanner stages of pubertal development (Marshall & Tanner, 1969, 1970). Tanner stages are a widely accepted standard for assessment of physical development, and have demonstrated good reliability, validity, and parent–child agreement (Dorn, Susman, Nottelmann, Inoff-Germain, & Chrousos, 1990). The parent was provided with the (gender-appropriate) drawings, and asked to select which of them “looked most like the child.” Based on the parent ratings, children were classified into five stages of puberty, in which stage 1 corresponds to infantile and stage 5 to complete puberty (Tanner & Whitehouse, 1982).

High Tanner stages partly reflected early maturation, and, to a lesser extent, low Tanner stages late maturation (regarding the age group of our sample, low Tanner stages do not necessarily imply late but rather on-time maturation). Using information from both waves (see Table 1 for descriptive statistics), adolescents were labeled as early-maturing if they had a Tanner stage with a prevalence of less than 10% in their gender (girls tend to mature early) and age group (cf. Oldehinkel, Verhulst, & Ormel, 2008). This implied that early-maturing boys ($n = 27$; 6%) had Tanner stage 3 or higher at age 10 or 11, stage 4 or higher at age 12, or stage 5 at age 13 or 14. Early-maturing girls ($n = 31$; 6%) were defined as those with Tanner stage 4 or higher at age 10 or 11, or stage 5 at age 12. This way, we constructed a dummy with 0 = on-time/late maturation and 1 = early maturation.

Table 1. Means and standard deviations of parental protection, unsupervised wandering, antisocial friends, Tanner stages, and antisocial behavior, for girls and boys

Variables	Girls			Boys			Difference		
	Mean	SD	n	Mean	SD	n	t	df	p
T1 Protection	1.82	.35	511	1.86	.37	460	-1.88	969	.06
T1 Unsupervised wandering	.10	.09	504	.10	.07	456	-1.13	958	.26
T1 Antisocial friends	.15	.32	512	.27	.48	464	-4.72	974	<.01
T1 Tanner stage	2.02	0.87	512	1.73	0.56	464	6.11	883	<.01
T2 Tanner stage	3.54	0.86	506	2.84	0.90	452	12.34	956	<.01
T2 Parental knowledge	2.13	.44	490	2.08	.46	439	1.51	927	.13
T2 Antisocial behavior	.18	.19	501	.33	.35	445	-8.37	944	<.01

Table 2. Correlations between parental protection, unsupervised wandering, antisocial friends, Tanner stages, and antisocial behavior, for girls and boys

Variable	1	2	3	4	5	6	7
1. T1 Protection	–	-.04	.04	.01	-.11*	.01	.06
2. T1 Unsupervised wandering	.00	–	.00	.03	-.08	.13*	.09
3. T1 Antisocial friends	.05	.11*	–	.06	.10*	-.19*	.23*
4. T1 Tanner stage	.05	.05	.06	–	.57*	-.09	.14*
5. T2 Tanner stage	.01	-.01	.02	.27*	–	-.08	.10*
6. T2 Parental knowledge	.00	-.05	-.23*	-.08	-.18*	–	-.45*
7. T2 Antisocial behavior	.10*	.14*	.12*	.14*	-.42*	.23*	–

Note. Girls' correlations are printed above the diagonal and boys' correlations below the diagonal.

* $p < .05$.

Although measures of psychological or subjective maturation have been used before (see, for example, Galambos, Barker, & Tilton-Weaver, 2003), few researchers included a measure of biological maturation in interaction with parenting behaviors to test for the maturity gap (a notable exception is Ge et al., 2002).

Analyses

Gender differences in the variables were examined using *t*-tests. Bivariate associations between all variables involved in the present study were tested using Pearson correlations, for boys and girls separately. Multiple linear regression analyses were used to test the associations between protection, unsupervised wandering, parental knowledge, biological maturation, antisocial friends, and antisocial behavior at T2. To ease interpretation of the coefficients, all continuous variables were standardized to $M = 0$ and $SD = 1$, and biological maturation and gender were dummy coded.

To provide an impression of the effects and to facilitate interpretation of the interaction effects, we wrote out multiple equations using simple slope analysis (cf. Aiken & West, 1991), with low and high levels of the predictors indicating one standard deviation below and above the mean, respectively, while holding all other variables to their sample means.

Results

Descriptive statistics

Means and standard deviations of predictors and outcome variable are reported in Table 1, for girls and boys separately. Variables included in the present study showed significant gender differences for Tanner stages, antisocial friends and antisocial behavior, and a

marginally significant gender difference for protection. Compared to girls, boys engaged more in antisocial behavior, had friends who scored higher in antisocial behavior, and tended to perceive more parental protection.

Table 2 contains the correlations between the variables, above the diagonal for girls and below the diagonal for boys. For both boys and girls, all variables related significantly to antisocial behavior in adolescence in the expected directions, except for two. Protection and unsupervised wandering were not significantly correlated to antisocial behavior for girls. In the regression analyses these possible gender differences will be statistically tested.

Regression analyses

To test our hypotheses, we were interested in main effects as well as interaction effects. We report on our multiple linear regression analyses in Table 3: the first column shows the main effects regression model; the second column shows the second step in which the moderator variables were entered into the regression; and the third column shows the final regression model, including the gender interactions.

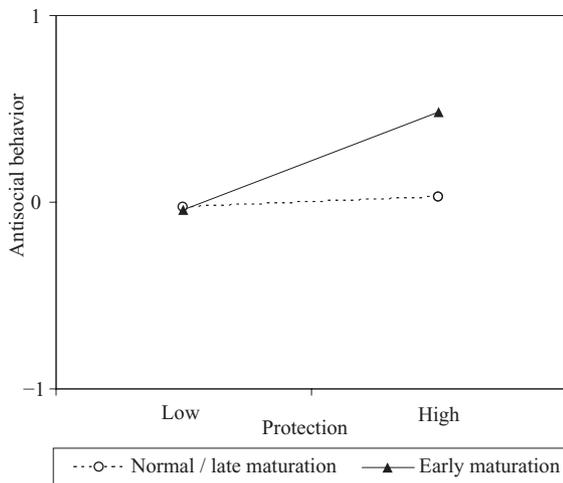
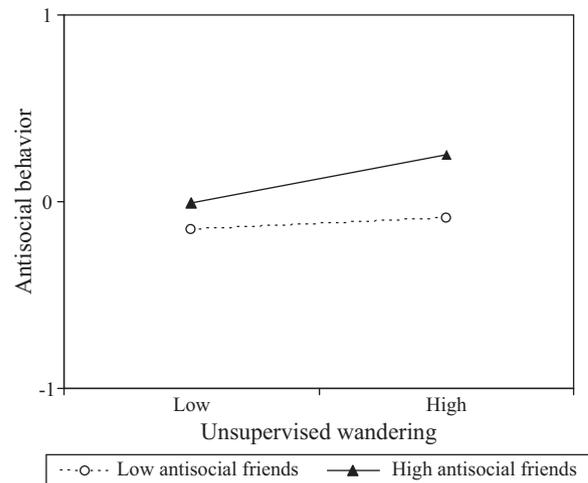
In Table 3, all variables had effects in the expected direction. For example, we see that boys were more likely than girls to engage in antisocial behavior in early adolescence ($b = .40, p < .01$). In addition, regression coefficients show that protection and unsupervised wandering were associated with more antisocial behavior in early adolescence ($bs = .06, p < .01$ and $.08, p < .01$, respectively). Parental knowledge was associated negatively with engagement in antisocial behavior ($b = -.37, p < .01$).

The second column in Table 3 shows the regression coefficients for all predictors, including the moderators and their hypothesized interaction effects. This model was significantly better than the

Table 3. Regression analyses of antisocial behavior in adolescence on parental protection, unsupervised wandering, biological maturation, and antisocial friends

Predictor	Antisocial behavior T2					
	$R^2 = .25$		$R^2 = .28$		$R^2 = .29$	
	<i>b</i>	S.E.	<i>b</i>	S.E.	<i>b</i>	S.E.
Gender (1 = boys)	.40**	.05	.37**	.05	.38**	.05
T1 Protection	.06**	.03	.04	.03	-.02	.04
T1 Unsupervised wandering	.08**	.03	.07**	.03	.02	.03
T2 Parental knowledge	-.37**	.03	-.34**	.03	-.34**	.03
T1/2 Biological maturation (1 = early)			.23**	.10	.23**	.10
T1 Antisocial friends			.13**	.03	.12**	.03
Protection * biological maturation			.24**	.10	.24**	.10
Unsupervised wandering * antisocial friends			.05*	.03	.05*	.03
Protection * gender					.11*	.05
Unsupervised wandering * gender					.12*	.05

Note. Regression analyses were based on z-standardized variables and, in the case of gender and biological maturation, dummy coded variables. * $p < .05$; ** $p < .01$ (one-tailed).

**Figure 2.** Interaction between protection and biological maturation in the prediction of early adolescents' antisocial behavior.**Figure 3.** Interaction between unsupervised wandering and antisocial friends in the prediction of early adolescents' antisocial behavior.

previous model without the moderating effects, $F(4, 904) = 10.88$, $p < .01$. Adolescents who matured early were more likely to engage in antisocial behavior, as were adolescents who had antisocial friends ($b = .23$, $p < .01$ and $b = .13$, $p < .01$, respectively).

As expected, the effect of protection was dependent on the level of biological maturation. This interaction is plotted in Figure 2. Using simple slope analyses (Aiken & West, 1991), we wrote out the simple slopes of protection for on-time/late and early maturers separately. We found that for on-time and late maturers, protection was not significantly related to antisocial behavior ($b = .03$, $t(912) = 0.91$, $p = .18$). For early maturers, however, protection was significantly related to more antisocial behavior ($b = .26$, $t(912) = 2.83$, $p < .01$).

In addition, there was an interaction between unsupervised wandering and antisocial friends. As hypothesized, having antisocial friends strengthened the relation between unsupervised wandering and engagement in antisocial behavior (see Figure 3). Simple slope analyses revealed that unsupervised wandering was not significantly related to antisocial behavior for adolescents with friends

low in antisocial behavior ($b = .03$, $t(912) = 0.75$, $p = .23$). For adolescents with friends high in antisocial behavior, however, unsupervised wandering was significantly related to more antisocial behavior ($b = .13$, $t(912) = 3.33$, $p < .01$).

In the final model, which was significantly better than the previous model, $F(2, 902) = 4.81$, $p < .01$, there were two gender interactions. It appeared that both protection and unsupervised wandering were significantly related to antisocial behavior in early adolescence for boys, but not for girls. For boys, the simple slope for protection was $b = .09$, and for unsupervised wandering $b = .14$ ($p < .05$).

Discussion

In the current study we examined antisocial behavior in adolescence; the findings point to a potential misfit between protective parents and adolescents striving for autonomy, in two ways. First, parents who protect their children too much, especially if these are

adolescents who are early maturers, have children who are more likely to engage in antisocial behavior in early adolescence. This finding is in accordance with theory on the maturity gap (Moffitt, 1993) and autonomy as a universal goal (Ryan & Deci, 2000). The results suggest that engagement in antisocial behavior is at least in part an answer of adolescents to blocked access to adult privileges such as autonomy and independence (Agnew, 2003). The goal of autonomy should be especially salient for early-maturing adolescents, because the experienced maturity gap (i.e., physically mature but no access to adult privileges) is largest for those who do not feel they have access to roles respected by adults. In line with this, parental protection was positively related to antisocial behavior in early adolescence only for early maturers.

Second, children who experience a lack of parental supervision by spending a lot of their time unsupervised on the street are also more likely to engage in antisocial behavior in early adolescence. The goal to realize a sense of belonging is likely to create a high priority in adolescents for spending time and hanging around with their peers. When this happens without supervision, it may lead to antisocial behavior, particularly when they associate with antisocial friends (Agnew, 2003; Fergusson & Horwood, 1999; Warr, 2005). We thus hypothesized having antisocial friends to moderate the relation between unsupervised wandering and antisocial behavior. Consistent with previous findings (Laird et al., 2003; Loeber & Farrington, 2000), we found that adolescents who have antisocial friends and spend much of their time on the street without parental supervision were more likely to engage in antisocial behavior. Thus, having antisocial friends strengthened the relation between unsupervised wandering and engagement in antisocial behavior, though the size of this moderating effect was small.

A reason for this weak interaction might be found in our measures. Due to the peer nominations, information on antisocial behaviors of friends concerned only the in-school friends (classmates), while unsupervised wandering (hanging around on street with friends) is likely to occur with both in-school and out-school friends. In other words, we might have missed out on a substantial part of the friend network by which adolescents are (negatively) influenced. Future research might do well to look into this interaction with other indicators of lack of supervision and antisocial friends than those that were used in the current study.

In contrast to the effects of protection and unsupervised wandering, parental knowledge about the child (reflecting both parental monitoring and child disclosure) was related to lower levels of antisocial behavior in early adolescence. Adolescents still need some guidance from their parents (Agnew, 2003), but the effects of parental protection may depend on how legitimate or justified this protection is perceived to be or how unobtrusive it is, which is in accordance with the stage-environment fit theory (Eccles et al., 1993). For reasons given above (concerning the expanded personal domain), blatant parental control is not a legitimate form of control, especially not for early maturers and for boys. Parents whose children are willing to disclose information have the opportunity to monitor their children without being blatantly controlling because they have knowledge about their children's whereabouts and friends.

Moreover, a context that stimulates child disclosure can be shaped by parental behavior (i.e., level of responsiveness). As such, parental knowledge is a proxy for the quality of parent-child relationship, resulting from activities by both parents and children. When parents ask for information about their whereabouts and friends in an atmosphere of interest and caring rather than

controlling, children may not feel jeopardized in their autonomy and their control over their personal domain. We indeed found that these parents were more likely to have children low on antisocial behavior.

These results can be taken as a detailed account of the role of parental behaviors that constitute protection, rule-setting, and supervision. So far, the literature has provided inconsistent findings on these relationships. Researchers have reported protective effects of parental supervision and monitoring for involvement in antisocial behavior (Laird et al., 2003; Loeber & Farrington, 2000). However, others have reported negative consequences of parental control or protection (Jensen et al., 2004; Sentse et al., 2009; Veenstra et al., 2006). We found that parental protection and unsupervised wandering are not always, or not always in the same way, related to antisocial behavior in early adolescence. The level of biological maturation and having antisocial friends specify conditions under which these parenting behaviors are related to antisocial behavior of adolescents. Although the moderating effect of antisocial friends was only just significant, the simple slope of unsupervised wandering for adolescents with antisocial friends was highly significant. In addition, the effects of both protection and unsupervised wandering were applicable only to boys. These findings are in accordance with the notion that boys are more likely to use antisocial behavior to achieve the goal of autonomy (Moffitt & Caspi, 2001). In sum, our results show that under certain conditions, the effect of absence of supervision is as negative as that of being overly protected.

Strengths and limitations

Some limitations of our study should be mentioned. First, as a result of our research design, we cannot make hard statements about causality. That is, though our outcome measure (antisocial behavior) was measured two and a half years later than parental protection and unsupervised wandering, it is possible that children's behavior influences the way parents treat them. Perhaps the aggressive behavior of children triggers protective behavior in parents, for example.

Similarly, parental knowledge was based on the extent to which adolescents provided information to their parents, whether spontaneously or not. It is possible that the negative relation between parental knowledge and antisocial behavior mainly resulted from non-antisocial children being open to their parents, and antisocial children being closed toward their parents, which implies reversed causality. Unfortunately, we were unable to test this alternative explanation owing to the timing of our measures. Moreover, we were not able to test directions of causality regarding our moderation models. For example, having antisocial peers moderates the association between unsupervised wandering and antisocial behavior, but it is equally plausible that unsupervised wandering moderates the association between having antisocial peers and antisocial behavior.

Second, unsupervised wandering was based on only one item: the amount of time adolescents hung around on the street with friends. In addition, our measure of antisocial friends was based on friendship relations within the classroom. Consequently, friendship networks outside the school, which have been found to be important as well (Kiesner, Poulin, & Nicotra, 2003), were not taken into account. Future researchers should include the influence of out-of-school friends on antisocial behavior of adolescents.

These friends are more likely to be risk factors for adolescents' adjustment, because out-of-school friends are more heterogeneous in age, gender, and behavior.

Third, we did not directly measure the importance of achieving a sense of behavioral autonomy. Instead, we used being a boy and biological maturation as proxies for a heightened importance compared to girls and to on-time or late maturers. This step, however, is consistent with the theoretical framework we used (cf. Agnew, 2003; Moffitt, 1993; Ryan & Deci, 2000). Still, our results should be taken with some caution, and more research with direct measures is needed.

Finally, we relied on adolescents' reports for the parenting characteristics (predictors) and antisocial behavior (outcome). This might have led to shared method variance.

Despite these limitations, the present findings make a potentially important contribution to the extant literature; the impact of relevant parenting characteristics on adolescents' antisocial behavior was examined in a large sample of early adolescents. The results of our study suggest that, at the onset of adolescence, parents are confronted with the potential dilemma of supervising their children and granting them autonomy. Parental protection and unsupervised wandering were associated with the engagement of adolescents in antisocial behavior. This was not true for all adolescents; early maturation exacerbated the negative effect of protection, and having antisocial friends made unsupervised wandering conducive to antisocial behavior. All in all, this study revealed the importance of establishing a delicate balance between parental protection and absence of supervision with respect to adolescents' autonomy.

Acknowledgments

This research is part of the TRacking Adolescents' Individual Lives Survey (TRAILS). Participating centers of TRAILS include various departments of the University Medical Center and University of Groningen, the Erasmus University Medical Center Rotterdam, the University of Utrecht, the Radboud Medical Center Nijmegen, and the Trimbos Institute, all in the Netherlands. Principal investigators are Prof. Dr. J. Ormel (University Medical Center Groningen) and Prof. Dr. F.C. Verhulst (Erasmus University Medical Center). We are grateful to all adolescents, their parents and teachers who participated in this research, and to everyone who worked on this project and made it possible.

Funding

TRAILS has been financially supported by various grants from the Netherlands Organization for Scientific Research NWO (Medical Research Council program grant GB-MW 940-38-011; ZonMw Brainpower grant 100-001-004; ZonMw Risk Behavior and Dependence grant 60-60600-97-118; ZonMw Culture and Health grant 261-98-710; Social Sciences Council medium-sized investment grant GB-MaGW 480-01-006 and project grants GB-MaGW 457-03-018 and GB-MaGW 452-04-314; NWO large-sized investment grant 175.010.2003.005); the Sophia Foundation for Medical Research (projects 301 and 393); the Dutch Ministry of Justice (WODC); and the participating universities.

References

Agnew, R. (2003). An integrated theory of the adolescent peak in offending. *Youth & Society, 34*, 263–299.

- Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Allen, J.P., Weissberg, R.P., & Hawkins, J.A. (1989). The relation between values and social competence in early adolescence. *Developmental Psychology, 25*, 458–464.
- Arrindell, W.A., Gerlsma, C., Vandereycken, W., Hageman, W.J.J.M., & Daeseleire, T. (1998). Convergent validity of the dimensions underlying the parental bonding instrument (PBI) and the EMBU. *Personality and Individual Differences, 24*, 341–350.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497–529.
- Buehler, C. (2006). Parents and peers in relation to early adolescent problem behavior. *Journal of Marriage and the Family, 68*, 109–124.
- 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.
- Dijkstra, J.K., Lindenberg, S., & Veenstra, R. (2007). Same-gender and cross-gender peer acceptance and peer rejection and their relation to bullying and helping among preadolescents. *Developmental Psychology, 43*, 1377–1389.
- Dorn, L.D., Susman, E.J., Nottelmann, E.D., Inoff-Germain, G., & Chrousos, G.P. (1990). Perceptions of puberty: Adolescent, parent, and health-care personnel. *Developmental Psychology, 26*, 322–329.
- Eccles, J.S., Midgley, C., Wigfield, A., Buchanan, C.M., Reuman, D., Flanagan, C. et al. (1993). Development during adolescence: The impact of stage-environment fit on young adolescents' experiences in schools and in families. *American Psychologist, 48*, 90–101.
- Fergusson, D.M., & Horwood, L.J. (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry, 40*, 581–592.
- Fulgini, A.J., & Eccles, J.S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. *Developmental Psychology, 29*, 622–632.
- Galambos, N.L., Barker, E.T., & Tilton-Weaver, L.C. (2003). Who gets caught at maturity gap? A study of pseudomature, immature, and mature adolescents. *International Journal of Behavioral Development, 27*, 253–263.
- Galambos, N.L., & Maggs, J.L. (1991). Out-of-school care of young adolescents and self-reported behavior. *Developmental Psychology, 27*, 644–655.
- Ge, X.J., Brody, G.H., Conger, R.D., Simons, R.L., & Murry, V.M. (2002). Contextual amplification of pubertal transition effects on deviant peer affiliation and externalizing behavior among African American children. *Developmental Psychology, 38*, 42–54.
- Giordano, P.C. (1995). The wider circle of friends in adolescence. *American Journal of Sociology, 101*, 661–697.
- Huisman, M., Oldehinkel, A.J., De Winter, A., Minderaa, R.B., De Bildt, A., Huizink, A.C., Verhulst, F., & Ormel, J. (2008). Cohort profile: The Dutch 'TRacking Adolescents' Individual Lives' Survey'; TRAILS. *International Journal of Epidemiology, 37*, 1227–1235.
- Jensen, L.A., Arnett, J., Feldman, S.S., & Cauffman, E. (2004). The right to do wrong: Lying to parents among adolescents and emerging adults. *Journal of Youth and Adolescence, 33*, 101–112.
- Kiesner, J., Poulin, F., & Nicotra, E. (2003). Peer relations across contexts: Individual-network homophily and network inclusion in and after school. *Child Development, 74*, 1328–1343.

- Kim, J.E., Hetherington, E.M., & Reiss, D. (1999). Associations among family relationships, antisocial peers, and adolescents' externalizing behaviors: Gender and family type differences. *Child Development, 70*, 1209–1230.
- Laird, R.D., Pettit, G.S., Dodge, K.A., & Bates, J.E. (2003). Change in parents' monitoring knowledge: Links with parenting, relationship quality, adolescent beliefs, and antisocial behavior. *Social Development, 12*, 401–419.
- Laird, R.D., Pettit, G.S., Dodge, K.A., & Bates, J.E. (2005). Peer relationship antecedents of delinquent behavior in late adolescence: Is there evidence of demographic group differences in developmental processes? *Development and Psychopathology, 17*, 127–144.
- 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. 23–44). New York, NY: Springer.
- Loeber, R., & Farrington, D.P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology, 12*, 737–762.
- Loeber, R., & Schmalzing, K.B. (1985). Empirical evidence for overt and covert patterns of antisocial conduct problems: A meta-analysis. *Journal of Abnormal Child Psychology, 13*, 337–353.
- Markus, M.T., Lindhout, I.E., Boer, F., Hoogendijk, T.H.G., & Arrindell, W.A. (2003). Factors of perceived parental rearing styles: The EMBU-C examined in a sample of Dutch primary school children. *Personality and Individual Differences, 34*, 503–519.
- Marshall, W.A., & Tanner, J.M. (1969). Variations in pattern of pubertal changes in girls. *Archives of Disease in Childhood, 44*, 291–303.
- Marshall, W.A., & Tanner, J.M. (1970). Variations in pattern of pubertal changes in boys. *Archives of Disease in Childhood, 45*, 13–23.
- Mason, W.A., & Windle, M. (2002). Gender, self-control, and informal social control in adolescence: A test of three models of the continuity of delinquent behavior. *Youth & Society, 33*, 479–514.
- 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. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology, 13*, 355–375.
- Moffitt, T.E., & Silva, P.A. (1988). Self-reported delinquency: Results from an instrument for New Zealand. *Australian and New Zealand Journal of Criminology, 21*, 227–240.
- Muris, P., Meesters, C., & van Brakel, A. (2003). Assessment of anxious rearing behaviors with a modified version of "Egna Minnen Beträffande Uppfostran" questionnaire for children. *Journal of Psychopathology and Behavioral Assessment, 25*, 229–237.
- Nucci, L.P. (2001). *Education in the moral domain*. Cambridge: Cambridge University Press.
- Oldehinkel, A.J., Verhulst, F.C., & Ormel, J. (2008). *Mental health problems during puberty: Tanner stage-related differences in specific symptoms. The TRAILS Study*. Manuscript submitted for publication.
- Patterson, G.R., Forgatch, M.S., Yoerger, K.L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development and Psychopathology, 10*, 531–547.
- Patterson, G.R., & Stouthamer-Loeber, M. (1984). The correlation of family management-practices and delinquency. *Child Development, 55*, 1299–1307.
- Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.
- Sentse, M., Veenstra, R., Lindenberg, S., Verhulst, F.C., & Ormel, J. (2009). Buffers and risks in temperament and family for early adolescent psychopathology: Generic, conditional, or domain-specific effects? The TRAILS Study. *Developmental Psychology, 45*, 419–435.
- Smetana, J.G., & Asquith, P. (1994). Adolescents' and parents' conception of parental authority and personal autonomy. *Child Development, 65*, 1147–1162.
- Smetana, J.G., Crean, H.F., & Daddis, C. (2002). Family processes and problem behaviors in middle-class African American adolescents. *Journal of Research on Adolescence, 12*, 275–304.
- Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology, 42*, 305–318.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*, 1072–1085.
- Stoolmiller, M. (1994). Antisocial behavior, delinquent peer association, and unsupervised wandering for boys: Growth and change from childhood to early adolescence. *Multivariate Behavioral Research, 29*, 263–288.
- Tanner, J.M., & Whitehouse, R.H. (1982). *Atlas of children's growth: Normal variation and growth disorders*. London/New York: Academic.
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge: Cambridge University Press.
- 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.
- Warr, M. (1993). Parents, peers, and delinquency. *Social Forces, 72*, 247–264.
- Warr, M. (2005). Making delinquent friends: Adult supervision and children's affiliations. *Criminology, 43*, 77–105.