Developmental Psychology
2009, Vol. 45, No. 5, 1314–1327

0012-1649/09/$12.00 DOI: 10.1037/a0016693

Developmental Links of Adolescent Disclosure, Parental Solicitation, and Control With Delinquency: Moderation by Parental Support

Loes Keijsers, Tom Frijns, Susan J. T. Branje, and Wim Meeus
Utrecht University

This 4-wave study among 309 Dutch adolescents and their parents examined changes in adolescent disclosure, parental solicitation, and parental control and their links with the development of delinquent activities. Annually, adolescents and both parents reported on adolescent disclosure, parental solicitation, and parental control, and adolescents reported on delinquent activities and parental support. Latent growth curve analyses revealed a linear decline in parental control between ages 13 and 16. Adolescent disclosure decreased gradually in adolescent reports and showed an L-shaped pattern in father reports and a V-shaped pattern in mother reports. A stronger increase in delinquent activities was related to a stronger decrease in disclosure in mother and adolescent reports and to lower levels of disclosure in father reports. The linkages between levels of disclosure and delinquent activities were stronger in families with high parental support than in families with lower support. Furthermore, in lower parental support families, a stronger decrease in paternal control was related to a stronger increase in delinquent activities. In high parental support families, however, a stronger decrease in adolescent-reported parental control was related to a less strong increase in delinquent activities.

Keywords: adolescent disclosure, parental control, parenting, adolescent delinquency, longitudinal

Many theories have emphasized that inadequate parenting is a risk factor in the development of delinquency during adolescence (e.g., social control theory of Gottfredson & Hirschi, 1990; and coercive family process theory of Patterson & Yoerger, 1997). However, a recent series of articles instigated by Stattin and Kerr (2000; Kerr & Stattin, 2000) has prompted scientific debate about the role that parental monitoring plays in this process (Fletcher, Steinberg, & Williams-Wheeler, 2004; Keijsers, Branje, Van der Valk, & Meeus, in press; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). Adolescents' own voluntary disclosure to their parents, rather than parental control or questioning, was shown to be the most important predictor of parental knowledge of adolescents' activities and was identified as a key factor in relation to adolescent deviance (Stattin & Kerr, 2000). Given this contradiction between theory that emphasizes the importance of parenting and these recent findings, the issue of whether and how parental monitoring and adolescent disclosure are related to delinquent activities is in need of longitudinal examination. Therefore, we tried to answer two research questions in this four-wave multi-informant study: How do adolescent disclosure and parental solicitation and control develop during middle adolescence, and how are changes in the parent–child relationship linked to the development of delinquent activities?

Loes Keijsers, Tom Frijns, Susan J. T. Branje, and Wim Meeus, Research Centre Adolescent Development, Utrecht University, Utrecht, the Netherlands.

Correspondence concerning this article should be addressed to Loes Keijsers, Research Centre Adolescent Development, Utrecht University, P.O. Box 80140, 3508 TC Utrecht, the Netherlands. E-mail: L.Keijsers@uu.nl

Changes in Adolescent Disclosure, Parental Solicitation, and Parental Control in Middle Adolescence

In their course toward becoming adults, adolescents become more autonomous and independent from their parents. The parent–child relationship is argued to change accordingly, transforming from an asymmetrical one in which adolescents are dependent on their parents in early adolescence, into a more symmetrical one in late adolescence in which adolescents are treated as autonomous and adult individuals and in which there is a more equal balance of power (Collins, 1990; Steinberg, 1990; Youniss & Smollar, 1985). Children claim more autonomy (among other means) by strategically managing the information that parents receive (Marshall, Tilton-Weaver, & Bosdet, 2005), and parents respond to this need by granting adolescents the right to make decisions on various issues without informing them first (Smetana & Asquith, 1994). Hence, it is normative that adolescents disclose less to their parents over the course of adolescence.

Under these conditions of decreasing adolescent disclosure, parents can use several monitoring strategies to obtain knowledge about their adolescents' whereabouts, activities, and friendships (Waizenhofer, Buchanan, & Jackson-Newsom, 2004). Often, however, parental monitoring is operationalized in two parenting behaviors (Stattin & Kerr, 2000). First, parents can exert control, a rather authoritarian parenting behavior that implies setting rules and demanding that adolescents keep them informed on what is going on during their unsupervised hours (Stattin & Kerr, 2000). For instance, parents can insist that adolescents tell them all about their activities and whereabouts during unsupervised after-school leisure time. This type of control, however, becomes less appropriate over the course of adolescence. Adolescents not only become more cognitively adept at making well-considered decisions for themselves (Noller, 1995) but are also in the process of

changing their relationship with their parents into a more symmetrical one. It thus seems normative that parents slacken control during middle adolescence. Second, parents can try to stay informed by asking questions about their child's unsupervised activities and whereabouts (Stattin & Kerr, 2000). Parental solicitation is less authoritarian and can therefore be assumed to fit with a parent–adolescent relationship that is developing toward more equality and symmetry.

Unfortunately, longitudinal evidence to substantiate these proposed changes in adolescent disclosure and parental control is remarkably scarce. One study showed less self-disclosure for older adolescents than for younger adolescents, especially for boys (Finkenauer, Engels, & Meeus, 2002), but most cross-sectional studies did not show age differences in disclosure (for a review, see Buhrmester & Prager, 1995; for empirical examples, see Darling, Cumsille, Caldwell, & Dowdy, 2006; Noller & Callan, 1990; Soenens et al., 2006). There is also some empirical evidence of a (slight) decrease in parental control during adolescence (Soenens et al., 2006; Van der Vorst, Engels, Meeus, Deković, & Vermulst, 2006), but to our best knowledge, the development of parental solicitation in adolescence has not been examined. Therefore, in the current study we examined these assumptions about normative development in adolescent disclosure, parental solicitation, and parental control using a longitudinal design.

Changes in Disclosure, Parental Solicitation, and Parental Control and Development of Delinquent Activities

Our perspective on changes in parent–adolescent relationships entails that adolescents disclose less over time to reduce parents' authority and to gain autonomy. These changes take place at the same time that many adolescents from well-functioning families engage in delinquent activities, such as vandalism or theft (Moffitt, 1993; Patterson & Yoerger, 1997), and this raises the question whether these processes in and outside the family are linked. As adolescents spend an increasing amount of time unsupervised by their parents (Dubas & Gerris, 2002; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996), parents have less direct knowledge of whereabouts, friends, and (potentially norm-breaking) activities. Adolescents, much more than children, thus have unique power to inform parents about crucial events in their lives and can enable parents to offer guidance and advice. The willingness to disclosure to parents may thus reflect whether adolescents care about their parents' wishes and expectations. According to Hirschi's social control theory of delinquency, persons who care about others' wishes and opinions are more bound by norms and are therefore less likely to deviate (Hirschi, 1969). From this perspective, a decline in disclosure should be linked with an increase in delinquency.

It has repeatedly been argued that a lack of monitoring (i.e., parental control and solicitation) is a risk factor in adolescent delinquency (e.g., Gottfredson & Hirschi, 1990; Granic & Patterson, 2006; Moffitt, 1993). It can facilitate associations with deviant peers from whom adolescents can learn or imitate antisocial conduct (Moffitt, 1993). Our perspective on changing relationships entails that parental influence on adolescents' decision making declines during adolescence. In line with this, recent reinterpretations of parental monitoring suggest that lack of parental control and lack of solicitation are less important risk factors than lack of adolescent disclosure in the emergence of adolescent delinquency (Stattin & Kerr, 2000). In recent studies, the link between adolescent disclosure and delinquency is quite robustly found (Keijsers et al., in press; Kerr & Stattin, 2000; Soenens et al., 2006; Stattin & Kerr, 2000). However, the negative link of parental monitoring (i.e., parental control and solicitation) with delinquency that was repeatedly shown before (for a review, see Loeber & Dishion, 1983) seems to disappear when parental solicitation and control are operationalized as active parental efforts, instead of parental knowledge (Stattin & Kerr, 2000). We thus hypothesized a negative developmental linkage between disclosure and delinquent activities; that is, we expected to find that decreasing disclosure goes hand in hand with increasing delinquent activities. Further, in absence of consistent findings on the link of parental monitoring with delinquency, we explored whether the development of parental control and solicitation are linked with the development of delinquency, after controlling for the linkage between disclosure and delinquency, without stating explicit a priori hypotheses.

The Role of Perceived Parental Support

It has been argued that parenting practices generally yield more often positive effects on adolescents' adjustment in the context of parenting styles with higher levels of emotional supportiveness (Darling & Steinberg, 1993; Mounts, 2002), and it may thus very well be that parental control and solicitation yield different outcomes under varying levels of parental support (see also Collins & Laursen, 2004; Soenens et al., 2006). The current study thus contributes to the discussion on whether parental monitoring is associated with delinquency (Fletcher et al., 2004) or not (Stattin & Kerr, 2000) by examining whether parental control and solicitation are differentially associated with delinquency under varying levels of parent–child relationship quality. We hypothesized that parental control and solicitation are negatively related to delinquency in highly supportive families only.

In line with this, it has been argued that the link between disclosure and delinquency depends on how parents generally respond to disclosure (e.g., Keijsers et al., in press; Kerr, Stattin, & Trost, 1999) and the level of parental support (i.e., a measure for the affective bonding between parent and child). Compared with supportive relationships, unsupportive relationships are more likely to involve inadequate or negative parental responses to adolescent disclosure (Kerr et al., 1999). When adolescents perceive their parents' reactions, opinions, and expectations about adolescents' behavior as supportive, we assume that parental norms affect adolescents' behavior more strongly (Hirschi, 1969). We therefore tested the hypothesis that the association of disclosure and delinquency is stronger in highly supportive relationships than in less supportive relationships.

Informant Differences and Adolescent Sex Effects

Parents and children live in the same world yet in different realities, and different informants may hold different views on this process. We therefore tried to replicate findings using reports of adolescents, fathers, and mothers. Further, adolescent boys and girls differ in both their relationship with their parents and their problem behaviors. Specifically, associations between disclosure and delinquency could be a reflection of lower levels of disclosure

and higher levels of delinquency of boys compared with girls (Finkenauer et al., 2002; Moffitt & Caspi, 2001). To examine this possibility, we also examined adolescent sex differences.

The Present Study

In sum, this multi-informant longitudinal study addressed the following three research questions. First, how do adolescent disclosure, parental control, and parental solicitation develop during middle adolescence? We hypothesized that adolescent disclosure and parental control decrease on average, and we explored whether similar changes occur in parental solicitation. Second, is the development of adolescent disclosure, parental solicitation, and parental control related to the development of delinquent activities? We hypothesized that delinquent activities and disclosure are negatively linked. That is, we expected to find that higher levels of delinquent activities coincide with lower levels of disclosure, and that a stronger increase in adolescent delinquent activities overlaps with a stronger decrease in disclosure. Further, we explored whether (the development of) parental solicitation and control are linked with (the development of) delinquent activities when pitted against adolescent disclosure. Third, does parental support moderate the associations of adolescent disclosure, parental control, and solicitation with delinquent activities? We hypothesized that the link between adolescent disclosure and delinquent activities is stronger in highly supportive relationships than in less supportive ones. In addition, we argued that the associations of (the development of) parental control and solicitation with delinquent activities are negative in highly supportive families only.

Method

Participants

The current sample was drawn from an ongoing longitudinal study on relationships of adolescents with parents and peers, named Conflict and Management of Relationships, or CONAMORE (Meeus et al., 2004), in which 938 early to middle adolescents participated. Out of the 656 two-parent Dutch families that were invited, 401 accepted our invitation to participate in annual home visits, and 323 families were randomly selected for financial reasons. At the start of the study, 1 year after the selection, 309 families were still two-parent families.

These 149 boys and 160 girls came from various high schools in municipalities located in the center of the Netherlands. At Time 1 (T1) of the current study, 1 year after the initial assessment, adolescents were in Grade 2 of high school and had a modal age of 13 (0.3% were 11, 2.9% were 12, 72.2% were 13, 23.9% were 14, and 0.6% were 15). Of the fathers, 1.7% did not finish high school, 16.6% graduated from high school, 38.1% graduated from middle or higher level vocational or technical training, and 35.6% had a university degree. Of the mothers, 0.7% did not finish high school, 36.0% graduated from high school, 41.9% graduated from middle or higher vocational or technical training, and 21.1% had a university degree.

Adolescents of this family sample ($n = 309$) were compared with Dutch middle adolescents from two-parent families who were not participating in family visits ($n = 347$). The family sample was not significantly different from this comparison sample in adolescent age, $t(645) = -1.88$, $p = .06$, or adolescent sex, $\chi^2(1, N = 656) = 0.74$, $p = .39$. Adolescents in the family sample were slightly less engaged in delinquent activities than their peers in the comparison sample, $t(650) = -2.00$, $p = .05$. Chi-square tests revealed no differences in educational level of fathers, $\chi^2(6, N = 677) = 10.53$, $p = .10$. However, mothers in the family sample were somewhat higher educated than mothers of the early adolescents in the larger sample, $\chi^2(6, N = 676) = 21.44$, $p < .01$. A maximum of 3.6% of the cases were missing per variable, and 87.7% of the respondents had no missing values over four measurements.

Procedure

Before the study, adolescents and their parents received written information and provided written informed consent. Adolescents participated annually in two assessments: school visits after school hours and home visits in which parents also participated. Families received the equivalent of $36 per home visit, and adolescents received the equivalent of $13 per school assessment. At both assessments, trained research assistants gave verbal instructions in addition to the written instructions in the large battery of questionnaires. Confidentiality in the treatment of data was explicitly guaranteed in this written and in verbal information.

Measures

Parental solicitation, parental control, and adolescent disclosure. Items tapping parental solicitation, parental control, and adolescent disclosure (Kerr & Stattin, 2000; Stattin & Kerr, 2000) were translated into Dutch. Parental solicitation assessed how often parents ask adolescents about unsupervised time. The original scale of six items was revised for conceptual and statistical reasons; that is, two items that measured parental questioning of their child's friends, or parents of friends, instead of parental questioning of the adolescents themselves were removed (confirmatory factor analysis and validity of this new measure in a Dutch sample are presented by Hawk, Hale, Raaijmakers, & Meeus, 2008). Four items remained, such as "During the past month, how often have your parents initiated a conversation with you about your free time?" The six-item parental control scale measured the way in which parents control adolescents' activities and friendships. An example item is "Must you have your parents' permission before you go out during the weeknights?" Six items on adolescent disclosure measured adolescents' voluntary and spontaneous revelations to parents about friends, activities, and whereabouts, such as "Do you spontaneously tell your parents about your friends (which friends you hang out with and how they think and feel about various things)?"

Adolescents and both parents completed these measures, and wording was adjusted for each informant. Answers were rated on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*often*), and mean scores were used for analyses. Across informants and measurements, reliability ranged from $\alpha = .59$ to .77 for parental solicitation, $\alpha = .77$ to .88 for parental control, and $\alpha = .73$ to .82 for adolescent disclosure. One-year stability of these scales ranged from $r = .42$ to .72.

Data of four measurements (T1, Time 2 [T2], Time 3 [T3], and Time 4 [T4]) were available for adolescent-reported data, and data

of three measurements (T2–T4) were available for parent-reported data. At T1–T3, adolescents reported on both their parents. At T4, a subsample of 239 adolescents reported on fathers and mothers separately, and for these cases we averaged the reports to create a score of adolescents on both parents.[1]

Parental support. Adolescents reported support from mothers and fathers separately, using the Network of Relationships Inventory for each parent (Furman & Buhrmester, 1985). For 12 items, adolescents indicated on 5-point Likert scales (1 = *little to none* to 5 = *could not be more*) the degree to which they perceived support within their relationship with father and mother. An example of an item is "Does your mother like or approve of the things you do?" The correlation between adolescent reports of support from fathers and mothers was strong (r = .58, .59, .60, and .60 for the four successive measurements). Reliability was high across measurement waves (between α = .82 and .91), and 1-year stability ranged from r = .71 to .78.

Adolescent delinquent activities. We assessed adolescents' engagement in delinquent activities using 14 self-reported items (adjusted from Baerveldt, Van Rossem, & Vermande, 2003). Respondents indicated on a 4-point scale (0 = *never*, 1 = *once*, 2 = *two or three times*, and 3 = *four times or more*) how often they had committed offenses, such as shoplifting and petty theft in the previous year. Sum scores were used in the analyses. Reliabilities of this scale were between α = .80 and .85 across measurements, and previous analyses have shown that this scale is adequately one-dimensional in a Dutch sample of low-risk adolescents (Baerveldt et al., 2003). The one-year stability was high (r = .68, .72, and .71 for the successive time intervals).

Strategy of Analysis

We successively examined (a) the development of parental control, parental solicitation, adolescent disclosure, and delinquent activities over time; (b) associations between the development of adolescent disclosure, parental solicitation, and parental control on the one hand and the development of delinquent activities on the other hand; and (c) moderation by parental support of these associations, with use of Mplus (Muthén & Muthén, 2006). Models were estimated with a robust maximum likelihood estimation method (Satorra & Bentler, 1994), which is a better way to estimate standard errors when normality assumptions are violated, as is the case with our delinquency measure (skewness $\leq$ 3.81; kurtosis $\leq$ 20.11).

Because missing data were completely at random—Little's (1988) missing-completely-at-random test, $\chi^2(506, N = 292) = 541.21$, p = .14—we included respondents with missing data in model estimations (using full information maximum likelihood; Enders & Bandalos, 2001). We judged model fit using the comparative fit index, which should exceed .95, and root-mean-square error of approximation, which should be below .08 (Hu & Bentler, 1999). Statistical power for this type of analyses was ensured by having sufficient sample size (i.e., preferably larger than n = 200 but a minimum of n = 100) and setting the alpha level to .05 (recommendations by Kline, 2005).

First, we ran a series of 10 latent growth models for each variable separately. In latent growth models, the development of a variable is expressed as the combination of a constant or mean level (i.e., intercept) and as a growth or change rate (i.e., slope). Variances around these so-called growth factors are estimated, which reflect variation between individuals in mean level or rate of change (for an introduction, see Duncan, Duncan, Strycker, Li, & Alpert, 1999). We tested both linear and nonlinear patterns. In linear models, we constrained slope factor loadings at −1, 0, 1, 2, and in nonlinear models, we fixed the first two slope factor loadings and freely estimated the rest. The intercept was put on the same measurement for adolescent and parent reports so that the mean level of the intercept could be compared between informants. That is, the slope factor loading of T2, which is the first measurement for parental reports and second measurement for adolescent reports, was fixed at zero. We chose the best fitting model based on a robust chi-square difference test (Satorra & Bentler, 2001), which should be used in conjunction with robust maximum likelihood. A nonlinear model is more complex, and has fewer degrees of freedom, and can only be accepted when it yields a significant improvement in fit (i.e., a significant lower chi-square value) compared with the linear model.

We tested adolescent sex differences, on each of these 10 models, using two-group analyses. Mean intercepts and slope factors were independently constrained to be equal for boys and girls. A significantly higher chi-square (i.e., worse fit) of the constrained model compared with the unconstrained model indicates significant sex differences on the growth factor under study.

To test whether results held across informants, we tested for informant differences in mean intercepts and slopes. To this end, we used separate models for parental solicitation, parental control, and adolescent disclosure. All reports on one variable were included in the model, and no associations between informants were included. Basically, the models that were previously estimated for each informant separately were now run with three informants included in the analyses. Differences in mean growth factors were tested by informant pairs. For instance, the mean intercept of solicitation by mothers was constrained to be equal to the mean intercept of solicitation by fathers. We compared the chi-square statistics of such a constrained model with an unconstrained model. A significantly lower chi-square of the unconstrained model would indicate that informant differences are present for the variable and pair of informants under study.

Second, we used multivariate latent growth models to test associations between growth factors. Models were conducted for each informant separately. Mean growth factors (and freely estimated slope factor loadings) of the previously estimated univariate models were thereby imputed. We estimated all correlations between intercepts (i.e., correlations between levels), correlations between intercepts and slope factors (i.e., correlations between levels of one variable with change of another variable), and correlations between slope factors (i.e., co-occurring or overlapping developmental processes). Hence, in examining the associations of the growth factors of adolescent disclosure, parental control, and

[1] The average score of adolescent reports on fathers and mothers did not differ from the scores that 79 other adolescents reported on both parents, which was also true for girls and boys separately. Moreover, adolescent reports on fathers' and mothers' solicitation were (moderately) highly correlated: r = .45, $p < .01$, for maternal and paternal solicitation; r = .75, $p < .01$, for maternal and paternal control; and r = .70, $p < .01$, for adolescent disclosure to fathers and mothers.

parental solicitation with growth factors of delinquent activities, we controlled for associations of disclosure, solicitation, and control with each other.

Adolescent sex differences in associations of control, solicitation, and disclosure with delinquent activities were tested. We again used robust chi-square difference tests to compare several constrained models in which one association was constrained to be equal for boys and girls with an unconstrained model.

Informant effects on the associations of parental control, parental solicitation, and adolescent disclosure with delinquency were tested by including reports of fathers, mothers, and adolescents in one model without correlations among reporters. Then we compared an unconstrained model with several models in which an association was constrained to be equal across pairs of informants. For instance, we constrained the association between disclosure and delinquent activities at intercept level to be equal for mother-reported disclosure and adolescent-reported disclosure and compared this constrained model with an unconstrained model. A significant increase in chi-square (i.e., worse model fit) after such modification would indicate that the association differs significantly for mother and adolescent reports.

Third, we tested the moderating effects of parental support on the associations of adolescent disclosure, parental solicitation, and parental control with delinquent activities. For this purpose, we created a dichotomous variable that would capture adolescent perceptions of parental support. We therefore differentiated latent classes of growth trajectories using growth mixture modeling (Muthén & Muthén, 2000), over four measurement waves of support of fathers and mothers (i.e., reports on fathers and mothers were included in one model). The model fit (in terms of sample-size-adjusted Bayesian information criterion; Sclove, 1987) of the freely estimated model was superior to the linear model and had an acceptable entropy of .74, and was therefore selected. The first class, which we labeled "high parental support," comprised 154 adolescents (67 boys and 87 girls) with a mean level of 4.02 ($SE = 0.05$) for mothers' support and 3.98 ($SE = 0.06$) for fathers' support. There was a slight decrease over time in support from mothers (mean slope $= -.08$, $SE = .03$, $p < .01$) and in support from fathers (mean slope $= -.10$, $SE = .03$, $p < .01$). The second class reported significantly lower levels of support and was therefore labeled "lower parental support." It comprised 155 adolescents (82 boys and 73 girls). Their mean level was 3.25 ($SE = 0.07$) on maternal support and 3.11 ($SE = 0.06$) on paternal support. There was no significant change in support over time. The distribution of boys and girls in the two groups was not significantly different, $\chi^2(1, N = 309) = 2.73$, $p = .10$. This dichotomization of parental support was used as a grouping variable in the multivariate growth models. For each association, we tested moderating effects by constraining the association to be equal for the high and lower support group and subsequently testing whether such constraint would increase the chi-square value of the model (i.e., would worsen model fit). Analyses for boys and girls were combined because of the limited sample size in each latent class.

Results

Development of Adolescent Disclosure, Parental Solicitation, and Parental Control

The first question in the current study addressed the development of parental control, parental solicitation, and adolescent disclosure over time. We hypothesized a decline in adolescent disclosure and parental control but had no specific hypotheses regarding change in parental solicitation. Table 1 shows descriptive statistics for adolescent-, father-, and mother-reported data.[2] Of the adolescents in our sample, 59% engaged in one or more delinquent activities during the 4 years of study. At T1, 34% reported one or more delinquent acts in the previous year, with most common delinquent activities being graffiti (10%), carrying a weapon such as a knife (11%), being involved in a fight (20%), and starting an illegal fire (15%). At T4, 34% engaged in one or more delinquent activities in the past year. Most common forms to be reported were graffiti (13%), vandalism (13%), involvement in fights (15%), and deliberately hitting or kicking someone in school or on the street (11%).

Table 2 shows the estimated developmental changes during middle adolescence (graphically displayed in Figures 1, 2, and 3). Because some slope factor loadings were freely estimated, and the slope factors thus reflected a nonlinear pattern of change, we ran additional analyses to clarify this pattern. That is, to test change in intervals other than the first, we fixed factor loadings of T2, T3, and T4 parent-reported data at free, 0, 1. For adolescent-reported data, we fixed factor loadings of T1–T4 at free, free, 0, 1, and at free, 0, 1, free.

Slope factors of adolescent disclosure were significant for each informant, indicating significant change according to each informant. Adolescents reported a gradual decrease in the level of disclosure over time. From T1 to T2 a significant decrease was found (see Table 2), from T2 to T3 no significant change occurred (mean slope $= -.04$, $SE = .03$), and from T3 to T4 disclosure again decreased significantly (mean slope $= -.11$, $SE = .03$, $p < .01$) Fathers reported an L-shaped pattern, in which disclosure significantly decreased from T2 to T3 (see Table 2) but not from T3 to T4 (mean slope $= .02$, $SE = .03$). Mothers' reports of adolescent disclosure showed a V-patterned change. They reported a significant decrease in disclosure from T2 to T3 (see Table 2) and a significant increase from T3 to T4 (mean slope $= .09$, $SE = .03$, $p < .001$).

No significant changes were found in father- and adolescent-reported parental solicitation; however mothers' reports revealed significant change over time. A significant decrease was found in mothers' solicitation between T2 and T3 (see Table 2) and a significant increase from T3 to T4 (mean slope $= .10$, $SE = .03$, $p < .001$). Regarding parental control, all reports revealed a significant linear decline in this parenting behavior during adolescence.

We did not find a significant increase in self-reported delinquent activities of adolescents. A significant variance around the slope factor, however, indicates that there is significant variation among individuals in the rate of change.

[2] Correlations tables can be obtained from Loes Keijsers.

Table 1
Means and Standard Deviations of Observed Variables for Each Informant

Variable	*N* (range)	Time 1		Time 2		Time 3		Time 4	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Adolescent disclosure (A)	301–309	3.95	0.55	3.76	0.56	3.72	0.58	3.61	0.64
Adolescent disclosure (M)	300–306			4.05	0.52	3.92	0.59	4.01	0.59
Adolescent disclosure (F)	300–304			3.84	0.52	3.74	0.58	3.76	0.54
Parental solicitation (A)	301–309	3.29	0.65	3.26	0.56	3.33	0.60	3.29	0.63
Parental solicitation (M)	301–308			3.88	0.48	3.81	0.47	3.91	0.55
Parental solicitation (F)	299–304			3.48	0.50	3.46	0.55	3.50	0.61
Parental control (A)	301–309	3.58	0.77	3.38	0.77	3.21	0.83	2.93	0.90
Parental control (M)	301–308			3.98	0.87	3.70	0.85	3.36	0.95
Parental control (F)	298–304			3.80	0.77	3.41	0.84	3.13	0.89
Delinquent activities (A)	298–309	1.41	3.05	1.64	3.45	1.64	3.49	1.64	3.72
Maternal support (A)	300–306	3.63	0.57	3.57	0.59	3.50	0.61	3.50	0.59
Paternal support (A)	300–307	3.54	0.62	3.49	0.66	3.38	0.68	3.38	0.65

Note. Informants are indicated in parentheses: A = adolescent; M = mother; F = father.

We tried to replicate findings on the development of adolescent disclosure, parental solicitation, and parental control with use of different reporters. Some informant differences were found in mean levels and in shape of developmental processes, but there was also substantial overlap. On all variables, mothers reported significantly higher mean levels than fathers, $\Delta\chi^2_{SB}(1, N = 309) > 13.33$, $ps < .01$, and adolescents, $\Delta\chi^2_{SB}(1, N = 309) > 7.80$, $ps < .01$, and fathers reported higher values than adolescents, $\Delta\chi^2_{SB}(1, N = 309) > 7.80$, $ps < .01$. In addition to these mean-level differences, developmental patterns were somewhat different. With respect to adolescent disclosure, mothers reported a V-shaped change, fathers reported an L-shaped pattern, and adolescents reported a gradual decrease. Further, mothers' reports of solicitation changed in a V-shaped pattern, whereas no change was found in adolescents' and fathers' reports. Parents reported a stronger linear decline in control than adolescents did, (mothers) $\Delta\chi^2_{SB}(1, N = 309) = 14.05$, $p < .01$; (fathers) $\Delta\chi^2_{SB}(1, N = 309) = 19.38$, $p < .01$, but the decrease in fathers' and mothers' reports of control did not differ significantly from each other.

Similar developmental processes were found for boys and girls. Girls reported higher mean levels of disclosure, $\Delta\chi^2_{SB}(1, N = 309) = 8.98$, $p < .01$; parental solicitation, $\Delta\chi^2_{SB}(1, N = 309) = 16.57$, $p < .01$; and parental control, $\Delta\chi^2_{SB}(1, N = 309) = 12.11$, $p < .01$, but less delinquent activities than boys did, $\Delta\chi^2_{SB}(1, N = 309) = 10.45$, $p < .01$. Parents of adolescent girls reported more adolescent disclosure than parents of boys did, (mothers) $\Delta\chi^2_{SB}(1, N = 309) = 11.46$, $p < .01$; (fathers) $\Delta\chi^2_{SB}(1, N = 309) = 6.03$, $p < .01$, but levels of their solicitation or control were not significantly different. The decrease in self-reported disclosure of adolescent boys was significantly stronger than the decrease in self-reported disclosure of girls, $\Delta\chi^2_{SB}(1, N = 309) = 8.87$, $p < .01$. Further, parents of boys reported a stronger decline in parental control on average than parents of girls did, (mothers) $\Delta\chi^2_{SB}(1,$

Table 2
Estimated Levels and Rates of Change Derived From 10 Univariate Latent Growth Models

Model	Intercept (mean level)		Slope (rate of change)		Slope loadings		Model fit			
	M (*SE*)	σ^2 (*SE*)	*M* (*SE*)	σ^2 (*SE*)	Time 3	Time 4	χ^2	*df*	CFI	RMSEA
Adolescent disclosure (A)	3.76 (0.03)	0.21 (0.02)***	−.19 (.03)***	0.04 (0.02)*	0.24	0.72	2.54	3	1.00	.00
Adolescent disclosure (M)	4.05 (0.03)	0.17 (0.02)***	−.13 (.03)***	0.10 (0.11)	1.00	0.31	0.29	1	1.00	.00
Adolescent disclosure (F)	3.84 (0.03)	0.17 (0.02)***	−.10 (.03)***	0.04 (0.02)	1.00	0.80	0.12	1	1.00	.00
Parental solicitation (A)	3.28 (0.03)	0.18 (0.02)***	.01 (.01)	0.00 (0.01)	1.00	2.00	2.90	5	1.00	.00
Parental solicitation (M)	3.88 (0.03)	0.14 (0.01)***	−.07 (.02)**	0.00 (0.00)[a]	1.00	−0.51	0.72	2	1.00	.00
Parental solicitation (F)	3.47 (0.03)	0.18 (0.02)***	.01 (.01)	0.00 (0.00)[a]	1.00	2.00	8.91	3	.98	.08
Parental control (A)	3.38 (0.04)	0.32 (0.03)***	−.21 (.02)***	0.04 (0.01)***	1.00	2.00	11.10	5	.98	.06
Parental control (M)	4.00 (0.05)	0.53 (0.08)***	−.32 (.03)***	0.08 (0.03)*	1.00	2.00	1.40	1	1.00	.04
Parental control (F)	3.79 (0.04)	0.39 (0.06)***	−.34 (.03)***	0.09 (0.03)**	1.00	2.00	3.60	1	.99	.09
Delinquent activities (A)	1.54 (0.16)	7.28 (1.72)***	.09 (.07)	1.29 (0.26)***	1.00	2.00	7.81	5	.99	.03

Note. See also Figures 1–3. σ^2 is the variance around mean levels and rates of change. Informants are indicated in parentheses: A = adolescent; M = mother; F = father. Confidence intervals = $M \pm (SE \times 1.96)$. Time 1 slope loadings were fixed to −1, and Time 2 slope loadings were fixed to 0; Time 3 and Time 4 slope loadings are presented in the table. CFI = comparative fit index; RMSEA = root-mean-square error of approximation.
[a] Variance of this slope factor was constrained to zero to overcome convergence problems.
* $p < .05$. ** $p < .01$. *** $p < .001$.

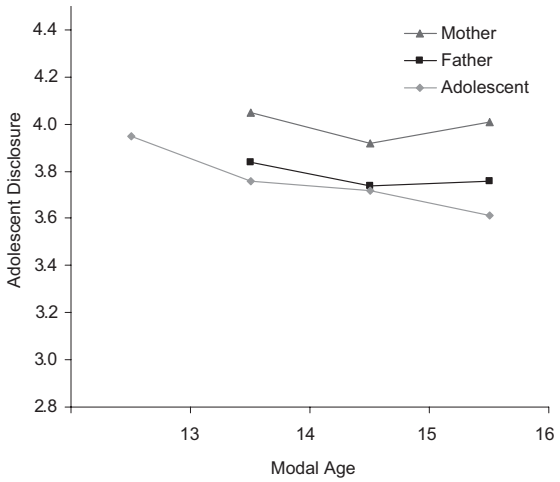

Figure 1. Development of adolescent disclosure in middle adolescence from adolescent reports (four measurement waves) and mother and father reports (three measurement waves).

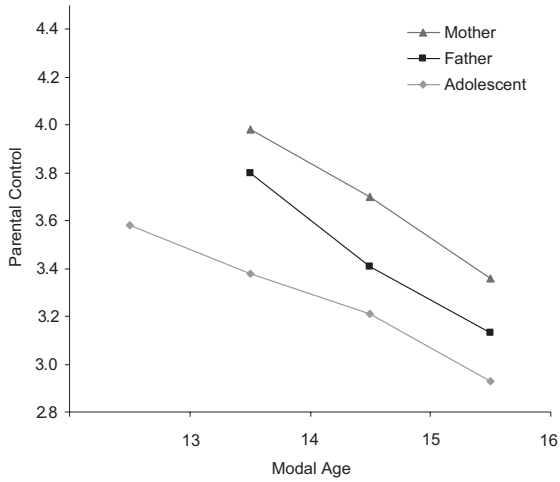

Figure 3. Development of parental control in middle adolescence from adolescent reports (four measurement waves) and mother and father reports (three measurement waves).

$N = 309) = 6.06$, $p < .01$; (fathers) $\Delta\chi^2_{SB}(1, N = 309) = 5.91$, $p = .02$. No other sex differences were found.

Associations of Adolescent Disclosure, Parental Solicitation, and Parental Control With Delinquent Activities

The second question of the present study referred to associations between the development in adolescent disclosure, parental solicitation, and parental control and the development of delinquent activities among middle adolescents. Results of the multivariate models to answer this question are shown in Table 3.

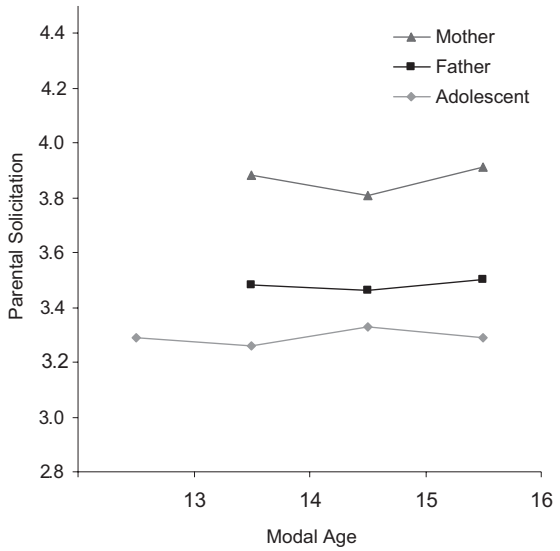

Figure 2. Development of parental solicitation in middle adolescence from adolescent reports (four measurement waves) and mother and father reports (three measurement waves).

Consistent across informants and supporting our hypotheses, mean levels of delinquent activities were negatively associated with mean levels of adolescent disclosure. We additionally found negative associations between levels of parental solicitation and control and delinquent activities in adolescent reports. However, the linkage between disclosure and delinquency was significantly stronger than the linkage between parental solicitation or control and delinquency. Taken together, most support was found for a link between high levels of delinquent activities and low levels of disclosure toward parents.

Extending these findings, we examined associations with changes in delinquent activities. Support for the hypothesized opposite developmental pattern of adolescent disclosure and delinquent activities was found in negatively associated slope factors in adolescent- and mother-reported data (Table 3). These negative linkages can be interpreted as a relation between a stronger decline or dip[3] in adolescent disclosure and a stronger increase in delinquent activities. Statistically, however, this negative link can also be interpreted as a relation between a stronger decline or dip in disclosure and a less strong decrease in delinquent activities, because there was no average change in delinquent activities but a significant variation in change rates. In father-reported data, no association between slope factors was found, but lower levels of disclosure were related to a stronger increase in delinquent activities. Only one association showed a linkage between parental solicitation and parental control and change in delinquent activities: Higher levels of control by mothers were related to a stronger increase in delinquent activities. For the whole sample, we thus found negative linkages between disclosure and delinquent activities in reports of adolescents, fathers, and mothers, but we found much less support for a mean level or developmental link between delinquent activities and parental solicitation and control.

[3] The link between slope factors of mother-reported disclosure and delinquent activities reflects the association between change in delinquent activities and the size of the dip in disclosure, because change in mother-reported disclosure was V shaped.

Table 3
Associations Between Growth Factors Derived From Multivariate Models for Adolescent-, Mother-, and Father-Reported Data

Estimated path	Adolescent report			Mother report			Father report		
	B	*SE*	β	*B*	*SE*	β	*B*	*SE*	β
Associations with level of delinquent activities									
Level of A disclosure	−.52	.11	−.44***	−.34	.09	−.30***	−.22	.09	−.19*
Level of P solicitation	−.20	.08	−.18*	−.09	.07	−.09	−.06	.09	−.05
Level of P control	−.31	.10	−.20**	.08	.12	.04	.08	.10	.05
Change in A disclosure	−.02	.04	−.04	−.15	.08	−.19	−.11	.08	−.21
Change in P control	−.08	.06	−.16	−.15	.08	−.20	−.11	.06	−.14
Associations with change in delinquent activities									
Level of A disclosure	−.06	.03	−.13	.00	.04	.00	−.07	.04	−.15*
Level of P solicitation	−.04	.03	−.10	.01	.02	.04	.04	.04	.07
Level of P control	−.03	.05	−.05	.10	.04	.14*	.04	.04	.06
Change in A disclosure	−.09	.02	−.44***	−.08	.03	−.26*	−.03	.04	−.13
Change in P control	.03	.03	.17	.01	.03	.03	.01	.03	.03
Other associations at mean levels[a]									
P solicitation ↔ P control	.07	.02	.30***	.10	.02	.37***	.06	.02	.21**
A disclosure ↔ P control	.06	.02	.21**	.04	.02	.14	.04	.02	.15
A disclosure ↔ P solicitation	.12	.01	.64***	.10	.01	.62***	.07	.02	.41***
Other associations between levels and change[a]									
Level of A disclosure ↔ change in P control	.01	.01	.07	.01	.01	.05	.00	.01	.00
Level of P solicitation ↔ change in P control	.01	.01	.12	.00	.01	.00	.01	.01	.05
Level of P solicitation ↔ change in A disclosure	.02	.01	.27	.00	.01	.00	.02	.02	.26
Level of P control ↔ change in A disclosure	−.00	.02	−.01	.00	.02	.01	.01	.02	.05
Other related developmental processes[a]									
Change in P control ↔ change in A disclosure	.02	.01	.48**	.00	.01	.03	−.01	.01	−.11

Note. Because of convergence problems due to zero variance, no paths were estimated with the slope factor of parental solicitation. Estimates were derived from a multivariate model for each informant separately. Fit statistics indicated adequate model fit for each model: adolescents, $\chi^2(103) = 209.55$; comparative fit index (CFI) = .94; root-mean-square error of approximation (RMSEA) = .06; mothers, $\chi^2(59) = 72.54$; CFI = .99; RMSEA = .03; fathers, $\chi^2(59) = 92.97$; CFI = .98; RMSEA = .04; A = adolescent; P = parental.
[a] These paths were estimated simultaneously, but we had no specific hypotheses regarding these associations.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Generally, the pattern of our multivariate findings was replicated with the use of different informants. However, the strength of the associations of mean levels of adolescent-reported delinquent activities with levels of adolescent-reported disclosure was stronger than for the associations of adolescent-reported delinquent activities with father- or mother-reported disclosure, $\Delta\chi^2_{SB}(2, N = 309) = 9.42$, $p = .01$, and the same was true for associations with parental control, $\Delta\chi^2_{SB}(2, N = 309) = 9.17$, $p = .01$. With respect to slope–slope associations or slope–intercept association, we did not find significant differences in the strength of associations between informants.

We subsequently tested for sex differences in associations of intercepts and slopes of parental control, solicitation, and disclosure with the intercept and slope of delinquency. We did not find sex differences in mother- and adolescent-reported data. However, in father-reported data, the negative association between change in disclosure and change in delinquent activities was slightly stronger for boys than for girls, $\Delta\chi^2_{SB}(1, N = 309) = 4.49$, $p = .03$. Also the association of change in parental control and change in delinquent activities was moderated by sex, $\Delta\chi^2_{SB}(1, N = 309) = 5.87$, $p = .02$, but was nonsignificant for both boys and girls. Generally, sex effects were thus not very strong.

Moderation by Parental Support

We examined these associations of adolescent disclosure, parental solicitation, and parental control with delinquent activities for families with lower and high levels of parental support to answer our third research question. To give insight in the baseline differences between these groups, we conducted *t* tests on T1 levels of adolescent-reported data. Adolescents in the high support group reported more adolescent disclosure (lower: $M = 3.73$, $SD = 1.72$; high: $M = 4.17$, $SD = 0.47$), $t(304) = 7.71$, $p < .01$, $d = 0.35$; parental solicitation (lower: $M = 3.09$, $SD = 0.65$; high: $M = 3.49$, $SD = 0.59$), $t(304) = 5.55$, $p < .01$, $d = 0.64$; and parental control (lower: $M = 3.47$, $SD = 0.78$; high: $M = 3.70$, $SD = 0.74$), $t(304) = 2.65$, $p < .01$, $d = 0.30$, than adolescents in the lower support group. Adolescents in the lower support group reported significantly more delinquent activities than their peers in the high support group (lower: $M = 1.99$, $SD = 3.84$; higher: $M = 0.80$, $SD = 1.72$), $t(296) = -3.41$, $p < .01$, $d = 0.40$.

Further, we tested whether associations between delinquency on the one hand and disclosure, solicitation, and control on the other hand differed for youths with high and lower parental support. Table 4 displays the results of this two-group multivariate model. Consistent across informants and in line with our hypothesis, we found that the negative associations between levels of disclosure and levels of delinquent activities were significantly stronger in families with high parental support than in families with lower support, (adolescent) $\Delta\chi^2_{SB}(1, N = 309) = 11.27$, $p < .01$; (mother) $\Delta\chi^2_{SB}(1, N = 309) = 7.61$, $p < .01$; (father) $\Delta\chi^2_{SB}(1, N = 309) = 5.75$, $p = .02$. Intercept–slope or slope–slope associations were not significantly moderated by support from parents.

Table 4
Associations Between Growth Factors in Lower and High Support Relationships Derived From Multivariate Models for Adolescent-, Mother-, and Father-Reported Data

	Adolescent report						Mother report						Father report					
	Lower			High			Lower			High			Lower			High		
Estimated path	*B*	*SE*	β	*B*	*SE*	β	*B*	*SE*	β	*B*	*SE*	β	*B*	*SE*	β	*B*	*SE*	β
Associations with mean level of delinquency activities																		
Level of A disclosure	$-.17_{a}$	.04	$-.37^{***}$	$-.65_{b}$	.16	$-.44^{***}$	$-.14_{a}$	.06	$-.25^{*}$	$-.48_{b}$	.15	$-.34^{**}$	$-.03_{a}$	.07	−.05	$-.33^{b}$	.15	$-.24^{*}$
Level of P solicitation	−.13	.04	$-.29^{**}$	−.08	.13	−.05	−.03	.04	−.07	−.14	.12	−.11	.04	.05	.08	−.09	.15	−.06
Level of P control	−.14	.08	−.18	−.35	.17	$-.19^{*}$	.17	.09	.19	.05	.21	.02	.02	.09	.02	.16	.17	−.08
Change in A disclosure	.04	.04	.18	.03	.09	.03	−.01	.05	−.02	−.24	.14	−.21	−.10	.07	−.36	−.05	.12	−.09
Change in P control	−.08	.03	$-.33^{**}$	−.05	.10	−.09	−.11	.09	−.30	−.20	.13	−.20	−.05	.05	−.12	−.14	.10	−.13
Associations with change in delinquency activities																		
Level of A disclosure	−.05	.03	−.20	−.10	.06	−.20	.01	.05	.03	.01	.05	.01	−.08	.05	−.27	−.03	.05	−.05
Level of P solicitation	−.01	.03	−.06	−.07	.05	−.13	.01	.03	.04	.02	.03	.05	.03	.03	.09	.08	.06	.15
Level of P control	−.00	.05	−.01	−.02	.06	−.03	.09	.05	.19	.11	.07	.13	.02	.05	.04	.07	.06	.10
Change in A disclosure	−.07	.03	$-.53^{*}$	−.10	.04	$-.32^{*}$	−.05	.03	−.35	−.09	.05	−.23	.01	.05	.09	−.08	.05	−.43
Change in P control	$-.02_{a}$	.03	−.13	$.09_{b}$	.04	$.36^{*}$	$-.07_{a}$	.05	−.34	$.08_{b}$	.05	.22	$-.06_{a}$	.03	$-.30^{*}$	$.07^{b}$	.04	.18

Note. Means with different subscripts are significantly different for adolescents in the high support and lower support group (χ^2_{diff} model comparisons per informant). In these analyses, we also statistically controlled for associations between disclosure, solicitation, and control, but because we had no specific hypotheses on these parameters, we excluded them from the table. Fit statistics indicated adequate model fit for each model: adolescents, $\chi^2(206) = 371.24$; comparative fit index (CFI) = .90; root-mean-square error of approximation (RMSEA) = .07; mothers, $\chi^2(116) = 153.30$; CFI = .96; RMSEA = .06; fathers, $\chi^2(116) = 153.30$; CFI = .98; RMSEA = .05; A = adolescent; P = parental.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

We also hypothesized that parental support would moderate the association of parental control and solicitation with delinquent activities. None of the associations of parental solicitation with delinquent activities was moderated by parental support. Further, no moderation was found on intercept–intercept or intercept–slope associations. The association between the rate of change in control and the rate of change in delinquent activities was, however, significantly moderated by perceived parental support, and this was found for each informant, (adolescent) $\Delta\chi^2_{SB}(1, N = 309) = 6.58, p = .01$; (father) $\Delta\chi^2_{SB}(1, N = 309) = 15.53, p < .01$; (mother) $\Delta\chi^2_{SB}(1, N = 309) = 8.11, p < .01$. In contrast to our hypotheses, the association between change in parental control and change in delinquent activities had a negative sign (i.e., parental control and delinquent activities follow opposite developmental paths) in lower support families. This negative association was significant in father-reported data only. That is, a stronger decline in paternal control was associated with a stronger increase in delinquent activities. In high support families, the association between change in delinquent activities and parental control was positive. This association, however, was only significant in adolescent-reported data. In these high support families, a stronger decline in adolescent-reported parental control thus related to a less strong increase in delinquent activities.

Discussion

This four-wave multi-informant study aimed to contribute to the ongoing debate about whether, when, and how adolescent disclosure, parental solicitation, and parental control are linked to adolescent delinquent activities (Fletcher et al., 2004; Soenens et al., 2006; Stattin & Kerr, 2000) by addressing this issue longitudinally and by examining the moderating role of parental support. Findings revealed a gradual decrease in adolescent disclosure and a clear decline in parental control during middle adolescence. Further, a stronger decline in mother- and adolescent-reported disclosure and lower levels of father-reported disclosure were related to a stronger increase in delinquent activities. Links between parental control and delinquent activities were moderated by levels of parental support. In lower support families, a decline in paternal control was related to an increase in delinquent activities. In highly supportive families, in contrast, a decline in adolescent-reported parental control was related to a decrease in delinquent activities. We discuss these findings and their implications below.

Decline in Adolescent Disclosure and Delinquent Activities

Previous cross-sectional studies have quite robustly shown that lack of disclosure about unsupervised activities is a marker for adolescents involvement in problem behavior (e.g., Stattin & Kerr, 2000) but have not addressed this issue from a longitudinal and developmental perspective that takes potential discontinuity of adolescent disclosure into account. Adolescents have an increasing need for autonomy (Beyers & Goossens, 1999; Steinberg & Silverberg, 1986), and the parent–child relationship changes accordingly. We found that disclosure toward parents changes significantly during middle adolescence, for both boys and girls (see also Finkenauer et al., 2002). Adolescents reported a gradual decrease, fathers reported a decrease between ages 14 and 15 only, and mothers reported a decrease between ages 14 and 15 and an increase between ages 15 and 16. Adolescents, fathers, and mothers thus held a somewhat different view on how adolescent disclosure develops, and mothers, in contrast to fathers and adolescents, reported that the level of disclosure (and also parental solicitation) was temporarily lower in middle adolescence. This could reflect that closeness between mothers and adolescents is temporarily lower in middle adolescence, whereas such a dip is not found for relationships with fathers (De Goede, Branje, & Meeus, 2009).

More importantly, our results revealed (moderately) strong associations between a stronger increase in adolescent delinquent activities and a stronger decrease in disclosure in mother and child reports and a lower mean level of disclosure in father reports. That is, the development of disclosure and delinquent activities were found to be negatively linked. One of the reasons why a stronger decline in (or lower level of) adolescent disclosure is associated with a stronger increase in delinquent activities may be that adolescent disclosure is the major source of parental knowledge about children's unsupervised activities (Keijsers et al., in press; Kerr & Stattin, 2000; Soenens et al., 2006; Stattin & Kerr, 2000). When parents have little knowledge, they miss opportunities to give advice and guidance, because they are largely unaware of activities, friendships, and whereabouts of their child. In addition, children who are engaging in delinquent activities have more issues to hide from their parents and therefore have more reasons to refrain from disclosure (Darling et al., 2006; Kerr et al., 1999), which may cause further problems for parents because their knowledge declines further. Maintaining a high level of adolescent disclosure thus seems an essential aspect of a good parent–child relationship in adolescence.

The negative association between adolescent disclosure and delinquent activities was found in families with high and lower levels of parental support but was strongest in highly supportive families. For adolescent disclosure to constitute a preventing factor for adolescent delinquent activities, it is a prerequisite that parents are responsive to adolescents' developmental needs and give advice or try to help the child in staying on track as a response to adolescent disclosure. In addition, adolescents should listen to and take notice of parental advice and guidance. When adolescents ignore parents' responses, or when parents do not respond in an adequate way, adolescent disclosure may not be related to less delinquent activities. Both prerequisites can be more easily met in families in which adolescents perceive their parents as sources of support (Kerr et al., 1999). We thus believe that adolescent disclosure is an important facet of the parent–child relationship in adolescence that contributes to healthy development, especially when there is a positive emotional climate (see also Darling & Steinberg, 1993) and when parents are thus able to respond in a positive way to what adolescents disclose.

Decline in Parental Control and Delinquent Activities

Findings clearly revealed that parents relax control during adolescence, suggesting that parents generally acknowledge their child's increasing need for autonomy and collaborate in creating a more egalitarian relationship (Laursen & Bukowski, 1997; Lollis & Kuczynski, 1997). This decline in parental control was consistently found for boys and girls and in reports of fathers, mothers, and children. Further, compared with changes in adolescent disclosure and parental solicitation, the decline in parental control was the most pronounced developmental change in the parent–child relationship in the current study.

In contrast to our hypotheses, we found a small yet significant association between a stronger decline in adolescent-reported parental control and a less strong increase in delinquent activities in highly supportive families. In less supportive families, however, there was a small but significant association between a stronger decline in paternal control and a stronger increase in delinquent activities. This does not fit with the idea of Darling and Steinberg (1993) that parenting practices may yield more effects in highly supportive family climates. However, we have also argued that parental control becomes less appropriate when working toward a symmetrical relationship. Especially in families with a positive family climate in which children feel supported by their parents, adolescents are more likely to interpret parental control as privacy invasive or overly controlling, rendering it developmentally inappropriate (for a discussion, see Stattin & Kerr, 2000). In line with this, a recent study showed that parental control led to feelings of privacy invasion mainly in highly supportive families (Hawk et al., 2008). Further, these feelings of being overcontrolled were found to relate to hanging out in the streets in the evening, to delinquent activities (Kerr & Stattin, 2000), and to conflicts between parents and their children (Hawk, Keijsers, Hale, & Meeus, in press).

This differential effect of parental control under different emotional family climates is interesting in light of a recent controversy between scholars who have stressed the importance of high levels of parental control in the prevention of delinquent activities (Gottfredson & Hirschi, 1990; Moffit, 1993; Patterson & Yoerger, 1997) and recent findings of Stattin and Kerr (2000; Kerr & Stattin, 2000) suggesting that the merits of parental control have been overestimated and that too high levels can be interpreted as developmentally inappropriate parenting. Our findings suggest that different ideas about the consequences of parental control could apply to different family climates.

Lower support families. In families with lower levels of parental support and somewhat higher levels of delinquent activities, we found that a stronger decline in father-reported parental control related to a stronger increase in delinquent activities. This fits the theory of coercive family processes (e.g., Granic & Patterson, 2006; Patterson & Yoerger, 1997). According to this theory, parents who are overly permissive and do not set firm rules are the ones to have children who are more delinquent. This theory also acknowledges that adolescents' delinquency may negatively affect parental behavior. Parents reduce control and get overly permissive in an attempt to avoid adolescent defiant reactions or because they feel unsuccessful in their control efforts (Granic & Patterson, 2006). In addition, parents are less able to control adolescents who are engaged in delinquent activities because these adolescents are particularly likely to spend a vast amount of time with their peer group (Fuligni & Eccles, 1993; Mahoney & Stattin, 2000) and thus outside the family context (Larson et al., 1996). This negative effect of delinquency on parental control is substantiated by longitudinal findings (Huh, Tristan, Wade, & Stice, 2006; Kerr & Stattin, 2003; Stice & Barrera, 1995). In less supportive parent–child relationships, a further decrease in the relatively low levels of parental control may thus be part of a negative cycle of increasing adolescent delinquent activities and parental withdrawal. In addition to investing in a good relationship quality to stimulate higher levels of adolescent disclosure (Finkenauer, Engels, Branje, & Meeus, 2004), maintaining parental control in these families may compensate the lack of emotional support that adolescents perceive and thus may have a positive effect on adolescents' well-being (see also Mounts, 2002).

High support families. A different process seems to be at work in highly supportive families, in which levels of parental control are generally higher. We found that maintaining these high levels of control was related to an increase in delinquent activities of adolescents. Moffit (1993) proposed that milder forms of adolescent delinquency can be means by which adolescents claim adult status in society. We believe that this idea would especially apply to highly supportive families. Studies show that high levels of parental control can be interpreted as overly controlling or privacy invasive, especially in highly supportive families (Hawk et al., 2008; Kerr & Stattin, 2000). These negative adolescent attributions to parents' behavior were found to be related to higher levels of delinquency (Kerr & Stattin, 2000). As such, overly high levels of parental control may not help adolescents but rather drive them away from parents. In turn, this process may be amplified by parents' response to finding out about their children's delinquent activities. These highly supportive parents may not reduce their control efforts but rather intensify them to try to keep their child away from deviancy. These processes can push the parent–child relationship into an interaction pattern in which parents increasingly impose rules of conduct on their children, leading to further increases in negative adolescent attributions toward behavior of parents and an increase in delinquent activities to claim autonomy. For these highly supportive families, maintaining high levels of parental control may thus be developmentally inappropriate and relate to more engagement in delinquent activities.

Strengths and Limitations

The strengths of the current study include the use of a longitudinal design with a large Dutch sample and with multiple informants. Of course, the study also has its limitations. First, there were limitations to our measures. Delinquent activities were based on self-reported data, and although this is considered reasonably reliable (Jolliffe et al., 2003), including other reporters and official records may increase the predictive validity (Farrington, Loeber, Stouthamer-Loeber, Van Kammen, & Schmidt, 1996). Moreover, adolescents reported on their relationship with both parents, whereas fathers and mothers are differentially involved in parenting (e.g., Crouter & Head, 2002; Waizenhofer et al., 2004). In future studies, it would be interesting to further examine the role that fathers and mother play in this process by asking adolescents to report on fathers and mothers separately. Further, the disclosure and parental monitoring scales that were used in the current study focused on everyday issues like school work and peers and were not domain specific, whereas previous work (e.g., Hasebe, Nucci, & Nucci, 2004; Smetana, Campione-Barr, & Daddis, 2004; Smetana & Daddis, 2002; Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009) clearly suggests that parental monitoring and adolescent disclosure vary by domain. For instance, these studies suggest that parents believe they have more legitimacy to control information access to prudential issues, such as using drugs, than to personal issues, such as how adolescents dress themselves. Therefore, it would be very interesting to include different domains in future studies.

Second, because of its focus on overlap in developmental processes, we could not precisely address the direction of effects. It

has been widely acknowledged not only that parents can influence their children but also that children's behavior has an impact on subsequent parenting (Bell, 1968; Lytton, 1990). The current study did not aim to unravel the direction of effects but rather focused on overlapping developmental processes. We therefore interpreted our findings mainly in terms of continuing cycles of interactions leading to associations between developmental processes (Granic & Patterson, 2006). Future studies that use, for instance, cross-lagged panel designs (Kline, 2005) may help illuminate the major direction of effects.

Third, we found significant heterogeneity in the development of delinquent activities, suggesting different underlying age crime curves for different subsamples (Moffitt, 1993). Future research should thus disentangle this heterogeneity into a limited number of homogeneous growth trajectories (for instance, with the growth mixture modeling framework; Piquero, 2008) and link family processes within these different groups of children to the development of delinquency. Moreover, the current study focused on the development of delinquent activities in a low-risk sample (i.e., youth from intact families in the Netherlands). Hence, it is unclear to which extent our findings generalize to children who come from disadvantaged neighborhoods or have a history of early and severe problem behavior. It is thus of importance to replicate these findings in, for instance, samples with more risk factors and samples with different ethnic backgrounds and educational levels.

Finally, the current study focused on the association of the parent–child relationship with delinquent activities, but other risk factors, such as deviant peers, are important to consider as well (e.g., Moffitt, 1993; Patterson & Yoerger, 1997).

In sum, our four-wave multi-informant study clearly showed that parents slacken control during middle adolescence. Adolescent disclosure gradually declined in the perception of the adolescent and the father, but in the perception of the mothers, disclosure was only temporarily lower at age 15. It further showed a negative developmental linkage between adolescent disclosure and delinquent activities, and this association was stronger in families with high levels of parental support than in families with lower parental support. Our findings also showed a positive developmental link between parental control and delinquent activities in highly supportive families, which can be interpreted as an association between a stronger decline in adolescent-reported parental control and a less strong increase in delinquent activities. In contrast, when parents were perceived as less supportive, we found a negative link between the development of parental control and delinquent activities, showing that a stronger decline in paternal control is related to a stronger increase in delinquent activities.

As such, our findings highlight the importance of studying changes in adolescent disclosure and parental control and the developmental overlap with an increase in adolescent delinquent activities in different family climates. Examining parenting practices without considering the emotional climate in which interactions between children and parents take place may distort results (see also Darling & Steinberg, 1993; Hawk et al., 2008). These findings also imply that with respect to intervention, there is no clear-cut answer as to whether parents should control the activities, whereabouts, and friendships of their adolescent children to prevent delinquent activities. The answer lies in the quality of the parent–child relationship. On the basis of these results, we would suggest that parents who have a highly supportive relationship with their adolescent children should trust them to disclose relevant information. Using authoritarian parenting strategies may be counterproductive in these relationships. In less supportive relationships, on the contrary, maintaining parental control (in addition to creating an environment in which disclosure can take place) may help prevent adolescents' engagement in delinquent activities.

References

Baerveldt, C., Van Rossem, R., & Vermande, M. (2003). Pupils' delinquency and their social networks: A test of some network assumptions of the ability and inability models of delinquency. *Netherlands' Journal of Social Sciences, 39,* 107–125.

Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review, 75,* 81–95.

Beyers, W., & Goossens, L. (1999). Emotional autonomy, psychosocial adjustment and parenting: Interactions, moderating and mediating effects. *Journal of Adolescence, 22,* 753–769.

Buhrmester, D., & Prager, K. (1995). Patterns and functions of self-disclosure during childhood and adolescence. In K. J. Rotenberg (Ed.), *Disclosure processes in children and adolescents* (pp. 10–56). New York: Cambridge University Press.

Collins, W. A. (1990). Parent–child relationships in the transition to adolescence: Continuity and change in interaction, affect, and cognition. In R. Montemayor, G. R. Adams, & T. P. Gullotta (Eds.), *From childhood to adolescence: A transitional period?* (pp. 85–106). Thousand Oaks, CA: Sage.

Collins, W. A., & Laursen, B. (2004). Parent–adolescent relationships and influences. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 331–361). Hoboken, NJ: Wiley.

Crouter, A. C., & Head, M. R. (2002). Parental monitoring and knowledge of children. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 3. Being and becoming a parent* (2nd ed., pp. 461–483). Mahwah, NJ: Erlbaum.

Darling, N., Cumsille, P., Caldwell, L. L., & Dowdy, B. (2006). Predictors of adolescents' disclosure to parents and perceived parental knowledge: Between- and within-person differences. *Journal of Youth and Adolescence, 35,* 667–678.

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113,* 487–496.

De Goede, I., Branje, S., & Meeus, W. (2009). Developmental changes in adolescents' perceptions of relationships with their parents. *Journal of Youth and Adolescence, 38,* 75–88.

Dubas, J. S., & Gerris, J. R. M. (2002). Longitudinal changes in the time parents spend in activities with their adolescent children as a function of child age, pubertal status, and gender. *Journal of Family Psychology, 16,* 415–426.

Duncan, T. E., Duncan, S. C., Strycker, L. A., Li, F., & Alpert, A. (1999). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. Mahwah, NJ: Erlbaum.

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling, 8,* 430–457.

Farrington, D. P., Loeber, R., Stouthamer-Loeber, M., Van Kammen, W. B., & Schmidt, L. (1996). Self-reported delinquency and a combined delinquency seriousness scale based on boys, mothers, and teachers: Concurrent and predictive validity for African-Americans and Caucasians. *Criminology, 34,* 493–514.

Finkenauer, C., Engels, R. C. M. E., Branje, S. J. T., & Meeus, W. (2004). Disclosure and relationship satisfaction in families. *Journal of Marriage and Family, 66,* 195–209.

Finkenauer, C., Engels, R. C. M. E., & Meeus, W. (2002). Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. *Journal of Youth and Adolescence, 31,* 123–136.

Fletcher, A. C., Steinberg, L., & Williams-Wheeler, M. (2004). Parental influences on adolescent problem behavior: Revisiting Stattin and Kerr. *Child Development, 75,* 781–796.

Fuligni, A. J., & Eccles, J. S. (1993). Perceived parent–child relationships and early adolescents' orientation toward peers. *Developmental Psychology, 29,* 622–632.

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21,* 1016–1024.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime.* Stanford, CA: Stanford University Press.

Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review, 113,* 101–131.

Hasebe, Y., Nucci, L., & Nucci, M. S. (2004). Parental control of the personal domain and adolescent symptoms of psychopathology: A cross-national study in the United States and Japan. *Child Development, 75,* 815–828.

Hawk, S. T., Hale, W. W., III, Raaijmakers, Q. A. W., & Meeus, W. (2008). Adolescents' perceptions of privacy invasion in reaction to parental solicitation and control. *Journal of Early Adolescence, 28,* 583–608.

Hawk, S. T., Keijsers, L., Hale, W. W., & Meeus, W. (in press). That's none of your business! Longitudinal relations between adolescents' perceptions of privacy invasion and conflicts with parents. *Journal of Family Psychology.*

Hirschi, T. (1969). *Causes of delinquency.* Berkeley, CA: University of California Press.

Hu, L., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1–55.

Huh, D., Tristan, J., Wade, E., & Stice, E. (2006). Does problem behavior elicit poor parenting? A prospective study of adolescent girls. *Journal of Adolescent Research, 21,* 185–204.

Jolliffe, D., Farrington, D. P., Hawkins, J. D., Catalano, R. F., Hill, K. G., & Kosterman, R. (2003). Predictive, concurrent, prospective and retrospective validity of self-reported delinquency. *Criminal Behaviour and Mental Health, 13,* 179–197.

Keijsers, L., Branje, S. J. T., Van der Valk, I. E., & Meeus, W. (in press). Reciprocal effects between parental solicitation, parental control, adolescent disclosure, and adolescent delinquency. *Journal of Research on Adolescence.*

Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology, 36,* 366–380.

Kerr, M., & Stattin, H. (2003). Parenting of adolescents: Action or reaction? In A. Booth & A. C. Crouter (Eds.), *Children's influence on family dynamics: The neglected side of family relationships* (pp. 121–151). Mahwah, NJ: Erlbaum.

Kerr, M., Stattin, H., & Trost, K. (1999). To know you is to trust you: Parents' trust is rooted in child disclosure of information. *Journal of Adolescence, 22,* 737–752.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford Press.

Larson, R. W., Richards, M. H., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology, 32,* 744–754.

Laursen, B., & Bukowski, W. M. (1997). A developmental guide to the organisation of close relationships. *International Journal of Behavioral Development, 21,* 747–770.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83,* 1198–1202.

Loeber, R., & Dishion, T. (1983). Early predictors of male delinquency: A review. *Psychological Bulletin, 94,* 68–99.

Lollis, S., & Kuczynski, L. (1997). Beyond one hand clapping: Seeing bidirectionality in parent–child relations. *Journal of Social and Personal Relationships, 14,* 441–461.

Lytton, H. (1990). Child and parent effects in boys' conduct disorder: A reinterpretation. *Developmental Psychology, 26,* 683–697.

Mahoney, J. L., & Stattin, H. (2000). Leisure activities and adolescent antisocial behavior: The role of structure and social context. *Journal of Adolescence, 23,* 113–127.

Marshall, S. K., Tilton-Weaver, L. C., & Bosdet, L. (2005). Information management: Considering adolescents' regulation of parental knowledge. *Journal of Adolescence, 28,* 633–647.

Meeus, W., Akse, J., Branje, S., Ter Bogt, T., Delsing, M., Van Doorn, M., et al. (2004). *Codebook of the research project Conflict and Management of Relationships (CONAMORE)* (Vol. 2). Unpublished manuscript, Utrecht University, the Netherlands.

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.

Mounts, N. S. (2002). Parental management of adolescent peer relationships in context: The role of parenting style. *Journal of Family Psychology, 16,* 58–69.

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24,* 882–891.

Muthén, B. O., & Muthén, L. K. (2006). *Mplus user's guide* (4th ed.). Los Angeles: Author.

Noller, P. (1995). Parent–adolescent relationships. In M. A. Fitzpatrick & A. L. Vangelisti (Eds.), *Explaining family interactions* (pp. 77–111). Thousand Oaks, CA: Sage.

Noller, P., & Callan, V. J. (1990). Adolescents' perceptions of the nature of their communication with parents. *Journal of Youth and Adolescence, 19,* 349–362.

Patterson, G. R., & Yoerger, K. (1997). A developmental model for late-onset delinquency. In D. W. Osgood (Ed.), *Nebraska Symposium on Motivation: Vol. 44. Motivation and delinquency* (pp. 119–177). Lincoln: University of Nebraska Press.

Piquero, A. R. (2008). Taking stock of developmental trajectories of criminal activity over the life course. In A. M. Liberman (Ed.), *The long view of crime: A synthesis of longitudinal research* (pp. 23–78). New York: Springer.

Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analysis. In A. von Eye & C. C. Clogg (Eds.), *Latent variables analysis: Applications for developmental research* (pp. 399–419). Thousand Oaks, CA: Sage.

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66,* 507–514.

Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika, 52,* 333–343.

Smetana, J. G., & Asquith, P. (1994). Adolescents' and parents' conceptions of parental authority and personal autonomy. *Child Development, 65,* 1147–1162.

Smetana, J. G., Campione-Barr, N., & Daddis, C. (2004). Longitudinal development of family decision making: Defining healthy behavioral autonomy for middle-class African American adolescents. *Child Development, 75,* 1418–1434.

Smetana, J. G., & Daddis, C. (2002). Domain-specific antecedents of

parental psychological control and monitoring: The role of parenting beliefs and practices. *Child Development, 73,* 563–580.

Smetana, J. G., Villalobos, M., Tasopoulos-Chan, M., Gettman, D. C., & Campione-Barr, N. (2009). Early and middle adolescents' disclosure to parents about activities in different domains. *Journal of Adolescence, 32,* 693–713.

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.

Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 255–276). Cambridge, MA: Harvard University Press.

Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development, 57,* 841–851.

Stice, E., & Barrera, M. (1995). A longitudinal examination of the reciprocal relations between perceived parenting and adolescents' substance use and externalizing behaviors. *Developmental Psychology, 31,* 322–334.

Van der Vorst, H., Engels, R. C. M. E., Meeus, W., Deković, M., & Vermulst, A. (2006). Parental attachment, parental control, and early development of alcohol use: A longitudinal study. *Psychology of Addictive Behaviors, 20,* 107–116.

Waizenhofer, R. N., Buchanan, C. M., & Jackson-Newsom, J. (2004). Mothers' and fathers' knowledge of adolescents' daily activities: Its sources and its links with adolescent adjustment. *Journal of Family Psychology, 18,* 348–360.

Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends.* Chicago: University of Chicago Press.

Received July 9, 2007
Revision received April 28, 2009
Accepted May 5, 2009 ■